THE LANCET.

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An Address

ON

THE ETIOLOGY AND TREATMENT OF RHEUMATOID ARTHRITIS.

Delivered before the Balneological and Climatological Section of the Royal Society of Medicine

BY P. W. LATHAM, M.D. CANTAB.,

FELLOW AND LATE SENIOR CENSOR OF THE ROYAL COLLEGE OF PHYSICIANS OF LONDON; CONSULTING PHYSICIAN TO ADDENBROOKE'S HOSPITAL, CAMBRIDGE.

MR. PRESIDENT AND GENTLEMEN,—In THE LANCET in 1901[1] I advanced the theory that the changes in the joints and the muscular wasting which are characteristic of rheumatoid arthritis are due to irritative and destructive lesions located in the spinal cord, and especially in the cervical and lumbar enlargements. What evidence can I produce in support of this theory?

ETIOLOGY.

According to Ross, "Pathological facts appear to show that the trophic nerves of the bones and joints are found in the mixed nerve trunk, and that they issue along with the motor fibres from the anterior cornua of the spinal cord, where they are, like the muscular trophic fibres, connected with a group of large caudate cells,"[2] and that "it seems now generally admitted that both irritative and destroying lesions of the ganglion cells of the anterior horns of the spinal cord and their homologues in the medulla oblongata, pons, and crura, or of the efferent fibres which unite these cells with the periphery, may give rise to active atrophy of muscle."[3] Again, "Pathological observations render it probable that the ganglion cells of the anterior horns exercise a controlling influence upon the nutrition of the bones and joints, while those of the posterior horns stand in a similar relation to the nutrition of the skin and its appendages."[4]

We must also bear in mind that the nutrition of the muscles and bones is dependent upon the vascular supply, and that this vascular supply is controlled by vaso-motor action which can be influenced by nervous impulses either originating in the central nervous system itself, or started by afferent impulses carried for the most part by ordinary sensory nerves passing up the central nervous system from some sentient surface in any part of the body; this vaso-motor action of the central nervous system may also be directly affected by the condition of the blood passing through it, or by substances introduced into the blood. Now, throughout the whole length of the spinal cord intermixed with the reflex and other mechanisms we have a number of minor vaso-motor centres, the action of which, though to a certain extent independent, is ruled and coördinated by the dominating or head centre which, as we know, is located in the medulla or bulb.

The paths taken by the vaso-motor fibres have not as yet been fully made out. They leave the spinal cord by the anterior roots of the spinal nerves, but in the majority of cases the fibres do not run in a direct course to their destination in company with the ordinary motor fibres passing to the same structures as themselves. The vaso-motor fibres of the lower limbs, for instance, do not pass directly with the anterior roots into the sciatic nerve, but largely, at all events, turn aside to join through the rami communicantes the abdominal sympathetic; and it is only after they have traversed a certain length of sympathetic nerve that they again return to the spinal nerves, enter into the sciatic plexus, and thus become part of the nerves of the leg—that is, an afferent impulse proceeding from the leg may, through the abdominal sympathetic, give rise to efferent vaso-motor impulses acting on other parts of the body besides the spot from which the afferent impulse springs. So also the vaso-motor fibres for the fore-limb pass in large measure from the anterior roots of the upper dorsal nerves to the thoracic sympathetic chain and thence by the first thoracic ganglion to the brachial plexus, and so on to the fore-limb.

How far this vaso-motor action is in harmony or even identical with the action of the so-called trophic nerves I cannot tell. What I want to suggest is that if from any sentient part of the body an afferent impulse is conveyed to the brain, ascending by the posterior roots of the spinal cord, reflex impulses descend along the vaso-motor fibres in the cord, pass out with the motor fibres by the anterior cornua, giving rise to *some action or molecular change in their ganglion cells;* then by the rami communicantes joining a sympathetic ganglion, impulses will radiate therefrom not only to the part from which the afferent impulse sprang but to other parts of the body in connexion with that ganglion, modifying the nutrition of the parts to which they are distributed—by increasing or diminishing the supply of blood to these parts. Further, that if there are irritative lesions either of the ganglion cells of the anterior horns or of the efferent fibres passing on to the periphery, similar results would be produced to those I have described. If there are destructive lesions the same results would follow as are produced by section of a nerve trunk, results with which in the case of the sciatic nerve or the brachial plexus we are familiar.

IRRITATION OF PELVIC ORGANS AND ARTHRITIS.

Now as regards the effect of irritative lesions of the pelvic organs, Dr. W. M Ord, in a paper read before the Clinical Society on Feb. 14th, 1879,[5] suggests that there is evidence to show that there exists a relation of cause and effect between uterine disorders and arthritis. The first case which attracted his attention in this respect was one of severe arthritis with severe dysmenorrhœa, the arthritis being regularly developed paroxysmally immediately before, throughout, and for a short time after each menstruation, and as regularly intermitted in the intervals. After much treatment had been ineffectually applied on the primary rheumatic hypothesis the uterine conditions were carefully and steadily attacked for a twelve-month. At the end of this time the dysmenorrhœa was overcome and the arthritic paroxysms soon after ceased to occur, and the patient from being wasted, sallow, anæmic, and hysterical, became an active, happy, and decidedly well-nourished member of society. He refers to 33 cases of rheumatoid arthritis combined with decided symptoms of uterine disorder or irritation. In a considerable proportion of the cases (14) the arthritic paroxysms coincided with the menstrual periods. In seven there was dysmenorrhœa, which was conspicuously absent in the other seven. He noticed that in three cases in which the arthritis was limited to, or began and remained excessive in, one side of the body, the ovary on the same side was painful and tender. Dr. Ord concluded that "inasmuch as the joint affection in many cases ebbs and flows with the uterine affection and may alternate with affections of the higher centres (as is shown in a remarkable case of mania which he records) the disorder must be regarded as the product of reflex action through the nervous system." I agree with him and believe the explanation is to be found in the reflex impulses travelling along the vaso-motor nerves, in the manner I have above endeavoured to describe, modifying the blood-supply and so the nutrition of the muscles and tissues to which those vaso-motor nerves are distributed.

Other forms of irritation in the pelvic organs may also give rise to the disorder. The irritation produced by gonorrhœal urethritis or by simple urethritis can by reflex action produce in both cases an arthritis identical in its morbid anatomy with rheumatoid arthritis. Of course, in gonorrhœal arthritis the changes in the joints are intensified by the presence in the blood of the morbid products, or toxins, excreted by the gonococci. Undoubtedly in all these cases the arthritis occurs most frequently where conditions involving irritability or disordered nutrition of the spinal cord exist, such as anæmia, nervous exhaustion, or general weakness.

It is not unreasonable to assume that if there are continuous afferent and efferent impulses, or intermittent impulses frequently repeated, passing along the spinal cord, the cells associated with these impulses will become exhausted and morbid changes or nutritional changes will be developed in the ganglionic cells of the anterior and posterior cornua of the nerve along which these impulses travel. The muscular

[1] THE LANCET, April 6th, 1901, p. 998.
[2] Ross Diseases of the Nervous System, second edition, vol. i., p. 267.
[3] Loc. cit., vol. i., p. 241.
[4] Loc. cit., vol. i., p. 825.
[5] Clinical Society's Transactions, vol. xii., p. 90.

atrophy associated with rheumatoid arthritis (but which sometimes precedes the joint affection) is regarded by some as determined by morbid impulses from the joint nerves. Sir W. R. Gowers says:—

> The nature of the cause of ordinary arthritic atrophies long ago suggested to Paget a "reflex influence" on the muscles as the probable mechanism, and Vulpian and Charcot have suggested a similar hypothesis, assuming a derangement of the nutrition and influence of the motor cells of the cord to be determined by the morbid impulses from the joint nerves, and to determine the alterations in the muscles. The theory receives important support from the fact that the wasting of the muscles is prevented by previous division of the posterior spinal roots,[6] which amounts indeed to an indirect demonstration of the fact that a reflex process underlies the phenomena.[7]

I suggest that in the early stages, at least, of rheumatoid arthritis the morbid impulses have their origin in the pelvic organs or in other parts of the body, it may be even in the nerves themselves, as I will now proceed to show.

INJURIES TO THE SPINAL CORD, &C., AND ARTHRITIC CHANGES.

Clinical experience has taught us that injuries to the spinal cord, or even to the nerves of a limb, will set up arthritic changes which cannot readily be distinguished from those seen in the earlier stages of rheumatoid arthritis. Dr. Weir Mitchell, Dr. Moorhouse, and Dr. Keen were the first to call attention to the effect of nerve injuries on the nutrition of the joints. The symptom occurs within a few days after the injury to the nerve.

> It consists essentially in a painful swelling of the joints, which may attack any or all of the articulations of a member. It is distinct from the early swelling due to the inflammation about the wound itself, although it may be masked by it for a time; nor is it merely a part of the general œdema which is a common consequence of wounds. It is more than these—more important, more persistent. Once fully established, it keeps the joints stiff and sore for weeks or months. When the acute stage has departed the tissues about the articulations become hard and partial ankylosis results, so that in many cases the only final cause of loss of motion is due to this state of the joints. Of all the agencies which impede movement it is the most difficult to relieve. Were we asked to state in what essential respect these lesions differ from subacute rheumatic disease of the same parts, we should certainly be at some loss to discern a difference.[8]

In a subsequent work[9] Dr. Weir Mitchell again refers to the curious arthritic changes which may follow dislocations, ball wounds, contusions, or even compressions of the nerves:—

> We may have one articulation—and if only one, a large one—involved, or perhaps all the joints of a finger, or every joint in the hand or of the entire limb may suffer. The swelling is never very great, the redness usually slight, and the tenderness on touch or motion exquisite. This condition of things remains, with little change, during weeks or months and then slowly declines, leaving the joints stiff, enlarged, and somewhat sensitive, especially as to movement. A small proportion of such cases find ready relief, but in many of them the resultant ankylosis proves utterly unconquerable, so that it is vain to break up the adhesions under ether, or to try to restore mobility by manipulation on splints. All alike fail, and serve only to add to the essential tortures of the accompanying neuralgia and hyperæsthetic states of skin. Since writing my last paper I have met with some of the former patients who suffered with these troubles, but in no case originally very severe, was there any great pain; indeed, in most of them the joints had become every year more stiff and useless. It is then quite clear that injuries of the spine, diseases of this organ and of the brain, and wounds, or any form of lesions of nerves, are capable of developing in the joints inflammatory conditions, usually subacute, and which so precisely resemble rheumatic arthritis in their symptoms and results that no clinical skill can discriminate between the two.

Various examples illustrating the above statements will be found in Dr. Weir Mitchell's work.

The arthropathies of hemiplegic patients described by Scott Alison,[10] Brown-Séquard,[11] and Charcot[12] are further examples of arthritic mischief resulting from lesions in the central nervous system.

Again, concussion of the spine from falling from a height or in skating may also induce arthritic troubles. In THE LANCET of April 6th, 1901, I have recorded an instance of this kind which is interesting both as regards the symptoms and the treatment. And in Guy's Hospital Reports[13] Sir William Gull reports Case 28, concussion of the spine; partial paraplegia, redness and swelling of the wrists and ankles as in acute rheumatism. He also reports Case 27, one of acute rheumatic (?) affection of the larger joints; paraplegia, slough over sacrum. He remarks: "It is a matter of great clinical interest that lesions of the cord are occasionally attended by an affection of the joints not to be readily distinguished from that which occurs in acute rheumatism." In Case 27 "fatigue from mechanical labour (mangling), acting especially on the lumbar and dorsal portions of the spine, in a delicate and anxious subject appears to have injured the nutrition of the cord. For two years, when much exerting herself, the patient felt pains between the shoulders and a sense of constriction and coldness round the chest. Paraplegia then suddenly came on, followed by redness, pain, and swelling of the larger joints, as in rheumatism."

MICROSCOPICAL APPEARANCES IN THE SPINAL CORD.

The clinical symptoms, then, of chronic arthritis furnish, it seems to me, undoubted evidence of pathological change in the nervous centres arising from irritative impulses, starting either in the afferent fibres or in the brain itself, and giving rise to nutritive or organic changes in the ganglion cells of the posterior or anterior cornua, or both, of the spinal cord. Nutritional changes, of course, would not be visible, even on microscopical examination, but in some instances skilled pathological observers have discovered organic changes in the cells of the spinal cord. Charcot[14] reports two remarkable cases of locomotor ataxia which were complicated with unilateral arthropathy. He says:—

> It is not very rare to find the spinal grey matter affected in locomotor ataxia; but the lesion is then generally found in the posterior cornua. Now, it was quite different in two cases of locomotor ataxia, complicated with arthropathy, in which a careful examination of the cord had been made; the anterior cornua were, in both cases, remarkably wasted and deformed, and a certain number of the great nerve cells, those of the external group especially, had decreased in size, or even disappeared altogether without leaving any vestiges. The alteration, besides, showed itself exclusively in the anterior cornua, corresponding to the side on which the articular lesion was situated. It affected the cervical region in the first case, where the arthropathy occupied the shoulder; it was observed a little above the lumbar region in the second case, which presented an example of arthropathy of the knee. Above and below these points the grey matter of the anterior cornua appeared to be exempt from alteration.

In an article in *Brain*, Vol. XXV., 1902, entitled "Some Observations on Primary Degeneration of the Motor Tract," Dr. F. W. Mott, F.R.S., and Mr. A. F. Tredgold report a case of chronic rheumatoid arthritis with muscular atrophy, giving the following account of the microscopical examination of the cord.

> *Microscopical Examination.*
>
> *Spinal cord.*—Sections were examined at the level of the sixth, seventh, and eighth cervical; first, tenth, twelfth dorsal; second and fifth lumbar, and first sacral segments.
>
> *Grey matter.*—In the cervical enlargement there are very important alterations in the large cells of the anterior horns. There are fewer such cells present than in the normal cord in this region, and a large number of them are seen to be undergoing a chronic degenerative change, with the deposition of a large amount of pigment. ..... There are some fairly healthy cells scattered amongst the atrophied ones; the process also does not pick out any special group of cells, but affects apparently to an equal extent all the different groups.
>
> In the dorsal segments examined there is not anything like the same amount of change in the anterior horn cells; here and there degenerated cells occur, but they are comparatively rare, whereas in the cervical and lumbar parts of the cord the reverse is the case, and healthy cells are in a decided minority.
>
> In the lumbo-sacral portion of the cord exactly similar changes occur as in the cervical enlargement—that is, many cells in various stages of degeneration are scattered throughout all the cell nests.
>
> The mesial-anterior group certainly appears to be as much, if not more affected than any other, unless it be the postero-external.
>
> In the cervical and lumbar enlargements there is also very considerable decrease in the fibres composing the network of the anterior horns, especially in the central portion. This change, which does not occur in the dorsal region, causes a very obvious pallor of the sections stained by Weigert's method.
>
> The posterior horns, the cells and reticulum of Clarke's column, and the other portions of the grey matter, appear perfectly normal in all regions of the cord.
>
> *Anterior roots.*—The anterior nerve roots in the cervical and lumbar regions are much atrophied.

The reporters conclude with the remark:—

> We are unable to say whether the change in the anterior horn cells is primary or secondary to the joint change, or to give any satisfactory explanation of this difference, we simply record the fact.

The microscopical appearances, as described in the above cases, confirm, I think, the view I have put forward as to the pathology of rheumatoid arthritis—namely, that it is due to spinal irritation or congestion, or chronic myelitis chiefly

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[6] Raymond: Revue de Médecine, 1890, p. 374.

[7] Sir W. R. Gowers: Diseases of the Nervous System, third edition, vol. i., p. 561.

[8] Gunshot Wounds and other Injuries of Nerves, by Dr. Weir Mitchell, Dr. Moorhouse, and Dr. Keen (Philadelphia, 1864), p. 83.

[9] On Injuries to Nerves (London and Philadelphia, 1872), p. 170.

[10] Arthritis Occurring in the Course of Paralysis, THE LANCET, 1846, vol. i., p. 278.

[11] Ibid., July 13th, 1861.

[12] Lectures on Diseases of the Nervous System, New Sydenham Society, 1877, p. 93.

[13] Third Series, vol. iv., 1858.

[14] Lectures on Diseases of the Nervous System, New Sydenham Society, 1877, p. 100.

affecting the ganglion cells of the anterior horns, but extending also, when the disease is associated with "glossy skin," to the ganglion cells in the posterior horns.

TREATMENT.

If this is the case the natural inference would be that in the earlier stages of the malady at all events, the treatment should be directed to the abatement of this spinal irritation, and that probably this can be most effectively done (the exciting cause being removed) by cupping or blistering the spine.

This is no new suggestion. As far back as 1831 a paper appeared in the *American Journal of Medical Sciences*, Vol. VIII., p. 55, by Professor J. K. Mitchell, the father of Dr. Weir Mitchell, on a New Practice in Acute and Chronic Rheumatism. In this paper he describes cases of chronic rheumatism arising from various causes, and cases of arthritic troubles following spinal injury, which were successfully treated by cupping and blistering. From 8 to 16 ounces of blood were abstracted from the neighbourhood of the cervical or lumbar enlargements according as the upper or lower extremities were affected, and if the cupping did not afford relief blisters were applied to the same regions. I rarely have had recourse to cupping, but I have found continuous counter-irritation a most valuable remedy. To obtain beneficial results, however, in rheumatoid arthritis, the counter-irritation must be pronounced and prolonged—slight irritation is useless—and it must be in the neighbourhood of the cervical and lumbar enlargements. Applied, for instance, to the mid-dorsal region it is useless, as was pointed out by Dr. J. K Mitchell 80 years ago in the paper above referred to.

The following is the plan I usually adopt. Two cantharides plasters, four or five inches long by two and a half wide (painted over immediately before their application with linimentum cantharidis or liquor epispasticus to ensure rapid action), are applied at bed-time, one on each side of the seventh cervical vertebra or the twelfth dorsal according as the joints of the upper or lower extremities are most affected. The blisters are kept on for 24 hours. They are then removed, the loose cuticle cut away, and a bread poultice made with boracic lotion applied for the night. In the morning the blistered surface is dressed with *freshly* prepared savine ointment spread on lint, and the dressing repeated every morning for eight or ten days. Each time before removing the lint it should be well soaked with boracic lotion so as to prevent its adhering to the blistered surface and causing unnecessary pain to the patient. I generally administer 20 drops of laudanum the first night on applying the blisters, and if the joints are painful repeat the dose every night. If the joints both of the upper and lower limbs are affected, then seven or eight days after applying the two blisters, two others are applied one on each side of the seventh cervical vertebra if the first have been applied to the dorsal region, and *vice versâ*, carrying out the same routine as before, the morning dressing of these blistered surfaces with savine ointment being repeated for eight or ten days. The pain and swelling of the joints are generally much relieved in three or four days after the application of the blisters, even when no laudanum has been given, but the improvement is more marked, both as regards the swelling and the pain, when the narcotic is given. If the patient is suffering much pain, instead of the single evening dose I give 10 minims of laudanum together with 30 minims of the liquor hydrargyri perchloridi every six hours.

Whilst the counter-irritation is being carried out it is most important that the patient should have complete rest in bed, the affected limbs being moved as little as possible, especially if movement causes pain. At the end of eight or ten days the healing of the blistered surfaces may be promoted by the application of some simple dressing. The patient's general health must be attended to, the diet must be such as can be easily digested—beef, mutton, fowl, &c.—with such alcoholic stimulants as are suitable. A daily action of the bowels must be ensured, and a proper amount of sleep must be obtained, if necessary by the regular administration at bedtime of opium or morphia. As the patient improves, massage, warm baths, radiant heat, &c., are important auxiliaries in the treatment, but on no account must massage be employed if it causes pain in any of the joints. As regards medicine, I have found the liquor hydrargyri perchloridi useful in doses of 1 drachm twice a day with some bitter infusion. Sometimes 3 to 5 minims of liquor arsenicalis may be combined with the perchloride solution with advantage—but it does not agree with all patients. Not infrequently it may be necessary, especially in severe and chronic cases, to repeat the blistering process after an interval of two or three months.

I need hardly say that it is of the utmost importance that before using cantharides or opium the condition of the kidneys should be carefully investigated. If they are unhealthy this plan of treatment is absolutely unsuitable. The electric cautery may then be employed instead of the cantharides.

RESULTS OF TREATMENT.

Such, then, is the plan of treatment which in my hands, and I am thankful to say in the hands of others, notably Dr. S. Gurney Champion and Mr. W. J. Midelton, both of Bournemouth, and Dr. Alexander of Buxton, has proved successful. Patients ailing for three, five, and ten years, some "thin, wasted, bed-ridden, and wishing to die," have been restored with "good movement in all the joints and able to walk three or four miles with ease." Such is Dr. Champion's report to me. Sometimes the diminution of pain and swelling of the joints very quickly follows this plan of treatment. In one case four days after the application of a "blister to the cervical region the patient's wedding-ring slipped off her finger. She had been for six months previously unable to remove it owing to the swollen condition of the phalangeal joint." I have myself seen a similar result. Time does not permit me to submit to you notes of some cases successfully treated after this method. THE LANCET of April 6th, 1901, contains reports of two of my earliest cases, and of one also under Dr. Arthur Latham at St. George's Hospital. In THE LANCET of Sept. 28th, 1907, Dr. Midelton reports several cases, one of which in particular possesses features of extreme interest. A married woman, aged 43 years, ailing for two years, wasted to a skeleton and unable to move hand or foot, every joint in the body stiff and painful; and pronounced by several medical men to be incurable. Counter-irritation of the spine was employed and repeated twice at intervals of two and three months. At the end of 20 months the patient was well nourished and active and able to resume her household duties.

CLINICAL SURGERY IN JAPAN.

BY YOSHIHIRO TAKAKI, M.R.C.S. ENG.,
PROFESSOR OF SURGERY, TOKYO CHARITY HOSPITAL MEDICAL COLLEGE.

I.—THE RESULTS OF 176 CASES OF INTERNAL PILES TREATED SOLELY BY WHITEHEAD'S METHOD.

BEFORE describing the results of my cases I should like to give various treatments chiefly adopted at the present time. In all cases a special care must be taken to ascertain before the operation whether any serious disease, like cancer, is present in the rectum or whether the piles are not dependent on some serious general disease like hepatic or cardiac trouble. If caused by pressure of tumours, the latter must be removed. Before operation the bowels must be thoroughly emptied. The lithotomy position is usually adopted, and after shaving and cleansing the perineum the sphincter is thoroughly stretched by the surgeon's fingers so as to relax it and bring the field of operation more clearly into view. The simple stretching often cures the cases of slight hæmorrhoids, and, besides, the pain caused by the contractive movements of the sphincter after the operation is lessened, and its severity depends a good deal on the thoroughness of this stretching. Here I am not going to discuss the methods for slight hæmorrhoids, but those requiring more than mere stretching or general treatment.

1. *Ligature.*—The patient is put into the lithotomy position, and after dilating and cleansing the rectum the piles are brought down and the ligature is put round a groove made about two-thirds down the pile. If there are more than one each is treated in the same way. The ligature must be put into the groove to prevent the slipping and subsequent secondary hæmorrhage.

2. *Clamp and cautery.*—After bringing the field of operation into view each pile is clamped by the forceps near its root. The clamp is applied in a direction corresponding to the long axis of gut, great care being taken not to include

the external skin. After tightening the clamp the projecting mass is cut away by scissors and the cut surface cauterised until the hæmorrhage is stopped. There is another method in which the projecting pile is not cut away by the scissors but by the cautery itself, and in order to prevent the secondary hæmorrhage which sometimes occurs after the clamp and cautery method, a portion of cauterised pile is left behind. This is said to prevent any after-hæmorrhage.

3. *Clamp, excision, and suturing.*—In this method, after clamping and excising the pile, the cut surface is sutured longitudinally by catgut.

4. *Injection.*—This method has been used a good deal at one time, especially for the patients who were afraid of operative treatment. Various drugs have been used, but the chief one is carbolic acid. The latter is usually mixed with glycerine, and a few drops of strong solution are injected into the piles. This method is good for not extensive hæmorrhoids and also for stopping sudden hæmorrhage. But for the extensive case it is not radical, and the piles recur after a few months or years. When the injection is not properly done an anal abscess is formed subsequent to the injection. Again, in extensive cases the contraction of the cicatrix causes narrowing of the rectum. This method is often very painful, and various procedures are employed to allay the pain. This is commonly done by using a local anæsthetic at the same time—cocaine, &c.

5. *Incisions and suturing.*—This method is to make several longitudinal incisions through the mucous membrane of the rectum and through them remove the hæmorrhoidal tissues. Afterwards the incisions are closed by catgut sutures.

6. *Whitehead's operation.*—An incision is made round the margin of the anus, at the junction of skin and mucous membrane, and after removing the hæmorrhoidal tissues the skin and mucous membrane are brought well together with sutures and closed. The sutures may be interrupted or continuous. There is a modified method advocated by some surgeons, in which the skin and mucous membrane are not completely separated right round the anus, but a small portion in four corners is kept intact, so that at the end of the operation the sutures form four groups—i.e., above, below, right, and left.

In all my cases I adopted the following rules: 1. The thorough examination of general bodily health was made before the operation. 2. The examination of the rectum for cancer or any other serious complication. 3. The presence of abdominal or pelvic tumour. 4. The bowels are thoroughly emptied by a dose of castor-oil given the night before, and an enema (once, or if necessary two or three times) on the morning of the operation. It is still better if the patient can come in a few days before the operation, and a slight cathartic is given during that time in addition to the above method.

Operation.—1. In lithotomy position. 2. Shaved and cleansed the perineum with soap and water. This cleaning was generally done in their rooms just before coming down to the operating theatre. It may be done just as well in the theatre preceding the operation. 3. The sphincter is thoroughly stretched with the fingers. 4. The rectum is cleansed with sterilised water or saline solution. 5. A piece of iodoform gauze is introduced into the rectum high up. 6. The incision between the skin and the mucous membrane is commenced at the right upper part (patient's left), and is carried round from the right to the left. 7. The incision is never made more than one inch at a time. 8. After cleaning out the pile tissue of the first part that part is closed with interrupted catgut sutures. The hæmorrhage is prevented by these sutures and there is no necessity for the artery forceps. 9. After closing the first portion the incision is carried farther round and the same thing done. In this way the operation is done by steps. The method of making an incision right round from the beginning, then clearing and suturing, causes a great deal of hæmorrhage, necessitating the use of a large number of artery forceps. The latter is inferior to the step method and is also severe. 10. Iodoform or simple sterilised gauze is applied to the wound and the operation is finished. At one time a piece of indiarubber tube was introduced partly into the rectum so as to help the escape of gas, but lately, finding that its presence often causes irritable contraction of the sphincter, it has been given up, but the gas escapes without much difficulty.

Some points requiring attention.—1. Leave as much skin as possible. Better cut the mucous membrane short than the skin. 2. The portions of elongated mucous membrane are cut off. 3. The hæmorrhage is stopped by the sutures applied to close the mucous membrane and skin and not by any special ligatures. 4. The sutures should be of catgut. 5. They ought not to be tied too tightly. 6. When done properly these sutures become loose in a few days and by the end of ten days no suture remains.

After-treatment.—1. Kept quiet in bed. 2. Fluid diet with some slops for nine days. 3. The bowels not to be opened for ten days. 4. Castor-oil or magnesium sulphate is given on the evening of the ninth day. 5. The patient is generally kept in the hospital at least 14 days.

Complications.—1. The pain after operation. This is relieved by the use of a morphia suppository and of subcutaneous injection of a small dose of morphia at the end of operation before the patient wakes up from the anæsthetic. The complete stretching of the sphincter makes a great deal of difference in the pain. 2. Hæmorrhage. There were one or two cases requiring ligaturing after operation for hæmorrhage, but there has been no bad hæmorrhage in all my cases. 3. Retention of urine. Many cases suffered from temporary retention of urine due to reflex action, but it was not necessary to pass a catheter in most cases. This is relieved usually by making the patient pass the urine in the sitting or standing posture in the usual manner. The lying position often aggravates it and makes it impossible for the patient to pass the urine. 4. In one case of extreme anæmia, caused by serious hæmorrhage from the internal piles, I operated after trying ineffectually various methods to stop continual hæmorrhage. The patient died suddenly from pulmonary embolism with sudden high temperature a few hours after the operation. It was one of my early cases, and since that time I have been careful to examine the condition of the blood before the operation.

The objections raised against the Whitehead operation.—1. It is not simple and it is often difficult to separate the mucous membrane and skin. If the sphincter is properly well stretched before the operation I never find any difficulty. 2. The time is too long compared with other kinds of treatment. In some books the time required for this operation is mentioned as an average of 30 minutes. I think it is too long. For myself, I spent about half an hour in my early cases owing to inexperience, but now I can do it from 10 to 15 minutes. 3. Too much hæmorrhage. If the operation is done by stages as mentioned above there is not much hæmorrhage. Of course, it is more than with other methods, but it is not serious enough to count it as an objection. 4. The mucous membrane becomes swollen a few days after operation and that the sutures cut into it, causing the disorganisation of the wound. It certainly becomes swollen in some cases, but if catgut is used and not tied too tightly it will be found that not much damage is done. 5. That a granulating surface is often formed between the mucous membrane and skin, and that its cicatricial contraction causes stricture. This is usually caused by the slipping or cutting out of the sutures due to early opening of bowels or to early exercise. So if the patient is kept quiet for 14 days and the bowels are not moved for 10 days this will not happen. 6. The injury of the sphincter ani. This is due to want of care on the part of the operator, and cannot really be considered as an objection.

After all, there is really no unremovable objection. The only objection I can think of is the time the patient is kept away from his work and also the desire of some patients for more substantial food during nine days following the operation. But these objections ought not to be considered when he thinks that he can be relieved for the rest of his life.

The number of my cases operated on is 176—124 males and 52 females. They were all treated by the same method and completely cured except in 7 cases—3 cases of stricture, 2 cases of ulcer on mucous membrane, 1 case of paralysis of the sphincter, and 1 case of pulmonary embolism. Of 3 cases of stricture 2 cases were patients in the Charity Hospital. They left the hospital a few days after operation and did not come to the hospital for some time. So the stricture was due to the early discharge and their carelessness. The other case was due to the early opening of bowels before the wound had had time to unite properly. Two cases of ulcer were due to leaving the mucous membrane too long, so that after the wound healed a portion of mucous membrane appeared outside the anus and the ulcer was formed by the rubbing of trousers. This could have been prevented by removing the mucous membrane at the time of operation. One

case complained of the inability to keep up the fæces, especially when suffering from diarrhœa. This case had the prolapse of rectum for eight years and even before the operation he was unable to hold up the fæces. So I do not consider this case to have been paralysed by the operation. As to the last case I mentioned this before. Three of these cases were done under a local anæsthetic. Of course, it was more difficult owing to the rigidity of the sphincter, but it can be done without much pain. In one case of prolapse it was fairly easy.

In conclusion, I wish to say that Whitehead's operation properly done is the most radical cure for internal hæmorrhoids and that it is no more serious than the other methods.

II. THE THYMUS TREATMENT OF CARCINOMA.

Although so much has been written about the treatment of cancer, yet even now the best treatment consists in the removal of the tumour by an operation. However, unless removed early it recurs and cannot be completely cured. In advanced cases we cannot resort to the knife and must treat them as best we can by other methods. I myself have tried the various methods recommended by well-known surgeons without any success. The methods were Coley's fluid, chloride zinc paste, trypsin, thyroid extract, &c. Finally, I have tried the thymus extract, and I found this more successful than the others. Thinking even any small contribution towards this important question is useful in solving this difficult problem, I dare to report the results of my own small experiences. An able paper on this subject was published by Dr. Frederick Gwyer, of New York, in the "Annals of Surgery," 1907, and I give the extracts from his paper before reporting my own cases.

Dr. Gwyer's Cases.

CASE 1.—Mrs. B., aged 49 years, married. The first operation for left breast cancer in 1899. The second operation for recurrence in 19 6. It recurred directly after and the X ray treatment was done without result. The patient was seen by Dr. Gwyer for the first time on April 1st, 1907. She had noticed the swelling of the supra-clavicular glands for the last two or three months. On examination: 1. Pain in the shoulder region, in the arm, in the breast region and scar, so great as to prevent sleep at night. 2. One or more glands just above the breast scar. A matted mass of glands beneath the clavicle, filling and bulging the sub-clavicular space. A mass of glands above the clavicle with several isolated glands in the neck region. The supra-clavicular mass about the size of a hen's egg, matted together and painful to touch. Several glands in the right side of the neck and some of considerable size in the right axilla. 3. The shoulder and arm showed marked swelling extending to the dorsum of the hand which was puffy. The patient was disinclined to move the arm from sense of weight and pain.

Treatment.—Thymus powder, one to four drachms, three or four times a day with sodium phosphate half an ounce a day for eliminatory purpose. The treatment was continued until April 27th, 1907. Then the reaction set in severely, with high temperature and severe pain, although the size of the tumours diminished, and it had to be given up for a time. Later it was continued. The results on May 7th: (1) disappearance of supra-clavicular glands; (2) disappearance of pain; (3) disappearance of œdema, pain, and recovery of the function of the arm; and (4) the character of the skin, which was hard, brawny, and pitted, changed and became soft and normal.

CASE 2. *X ray burn of hand.*—After one year's treatment the skin looked normal. The precancerous changes noticeable for the last five years have not reappeared.

CASE 3. *Cancer of the penis, with recurrence in the groin.*—A hopeless case. Free from pain and some diminution in size before death after this treatment.

CASE 4. *Cancer of the larynx with enlarged neck glands.*—Under treatment the glands diminished in size. Unfortunately, this case had to undergo tracheotomy, and septic pneumonia set in with fatal result.

CASE 5. *Cancer of the rectum.*—By this treatment the pain disappeared with diminution in size and the mass became moveable.

CASE 6. *Adeno-carcinoma and recurrent glands of neck.*—As results the glands diminished in size with disappearance of œdema and pain of arm.

The Preparation of Dried and Watery Extract.

The glands were received fresh, fat removed, cut up and dried at a low temperature by a forced draught of air, then ground and sifted to a uniform powder. Dose: 1 to 4 drachms three or four times a day. This was administered stirred in water about an hour before meals. The watery extract may be prepared from the dried gland as follows: To 8 ounces of a solution of sodium chloride (4 grains to the ounce), add a drachm of the dried powder and a little thymol. Frequently agitate for one hour. Strain and filter as rapidly as possible. After filtering twice, acetic acid 50 per cent. is added, using a 20 per cent. solution, with stirring, until a point of acidity is reached, which gives good flocculi on standing a minute or two. The precipitate is separated by filtration and redissolved, using about 1½ ounces of the solution. This solution is filtered twice, and to it is added acetic acid to acidity and good precipitation. The precipitate is again separated by filtration and redissolved in a solution of sodium carbonate (1 grain to the ounce of water), using 2 drachms of the solutions and adding thymol. This final solution is filtered three times or more and with a crystal of thymol will keep good in a refrigerator for an unknown time. Each drachm of the solution represents the products from half a drachm of the dried gland. The process for the production of an ounce of the extract takes about six hours. Distilled water should be used and the solution kept cool during manipulation. This fluid extract is administered either by mouth or hypodermically—up to 1 drachm.

Practical Results obtained by Dr. Gwyer.

1. Diminution or elimination of pain. 2. Diminution in the size. 3. Its use was followed by better digestion, by more regular action of bowels, and improvement of the general condition, as evidenced by a clearer skin and eyes, greater energy, and a general sense of health and well-being. Finally, he says that it is very necessary that during treatment every help be given towards elimination—the bowels kept slightly loose by phosphate of soda, the kidneys active by plenty of fluids, and the skin active by frequent baths. He also mentions that once the disintegration is started it may get beyond our control, and I can imagine a case with such an amount of cancerous tissue to be eliminated that under treatment an auto-intoxication of such severity might ensue as to prove fatal.

My Own Cases.

CASE 1. *Adeno-carcinoma of the glands of the neck.*—The patient aged 33 years, noticed a small swelling on the left side of the neck in front of the sterno-mastoid about three months ago. This became gradually larger, and besides more glands were said to have been felt later. There had been no fever or pain. The swelling was said to have varied in size sometimes. Lately the patient complained of pain in the throat and also some difficulty in breathing. On examination the patient was a well-built strong man. The neck was greatly swollen in front, especially on the left side. The skin was tense and somewhat shiny, with slightly enlarged vessels. It pitted on pressure. Slight pain and tenderness were present. The boundary of the tumour was indefinite, and it extended over the whole of the left across the middle line to the right side. Besides, small enlarged glands were felt. The consistency of the tumour was soft and not hard. There was nothing abnormal except slight congestion found in the throat. The left arm was swollen down to the fingers and it was twice as big as the right arm. He could not move this arm owing to loss of function.

As the patient complained of gradually increasing difficulty in breathing and swallowing, and besides the diagnosis was uncertain between the malignant and tuberculous, an operation was undertaken to ascertain. Two incisions were made over the left sterno-mastoid and some tissues were excised. Nothing came out through the incisions. The naked-eye appearance seemed to indicate its malignancy, and this was confirmed later by the microscopic examination of the excised tissues. As the radical operation was impossible the thymus treatment was started. It was given by the mouth. Two days after I noticed that the patient did not complain of pain in the throat and also seemed easier. Besides the tumour became more soft. Five days after some pus was discharged through the incisions. From then the tumour became softer and softer, and more and more pus was discharged. Once a large quantity escaped through the mouth. By that time the patient felt much easier and the difficulty in breathing had almost completely disappeared. But two months later the patient succumbed from sheer weakness, the result of cachexia. Results: (1) Disappearance of pain; (2) diminution in the size; (3) softening and suppuration; and (4) the swelling of the left arm was much diminished and the patient was able to move it a little.

CASE 2. *Carcinoma of the tongue.*—The patient was a woman, aged 54 years. She noticed a small painful ulcer on the right edge of the tongue about five months ago. She thought it was caused by a jagged tooth and did not take much notice at that time. She had the tooth out, but did not get better. In fact, the ulcer became larger. On examination the ulcer was extensive, spreading almost all over the tongue as far as could be seen. It was painful and the surface was irregular. The whole tongue was thickened and hard. The induration seemed to extend as far as the root of the tongue. Owing to pain and size the patient could not take food properly, and she was already showing the signs of cachexia. The glands under the jaw were enlarged. As it was impossible to do the radical operation the thymus treatment was resorted to. After a few doses the pain became much better and she could take food better. After a week's treatment the pain occurred very rarely. Besides, the tongue seemed to become darker in colour. The treatment was continued up till the time of her death six months later. An interesting fact was that the carcinomatous portion of tongue seemed to become necrotic, and it became separated altogether a few days before her death. Results: (1) Disappearance of pain; (2 the spreading of tumour did not seem to be so rapid as before; and (3) the tumour became necrosed.

CASE 3. *An extensive carcinoma of the penis and scrotum.*—The patient was a man 57 years old. He had noticed an ulcer on the gland of the penis a few months ago, and since then it had spread rapidly. He did not seem to have consulted any medical man. On examination the penis was almost indistinguishable owing to its destruction by the disease, and that portion was all one extensive cauliflower-like ulcerative tumour. The diagnosis was confirmed by microscope. The inguinal glands were affected on both sides and enlarged. He also complained of some pain. Nothing could be done by way of operation, and the thymus treatment was given. Pain disappeared.

CASE 4. *Carcinoma of the penis.*—The patient was a man, 56 years of age. He said he had had phimosis ever since a boy, and also noticed a small wart-like growth under the skin for a long time. Within the last few months he noticed a great deal of purulent discharge from under the skin, and in consequence he came up to Tokyo Hospital. On examination it was found to be the carcinoma of the penis secondary to the warty growth. The tumour affected the whole glans penis and also the surrounding skin. In the left inguinal region there were a few

slightly enlarged glands. Although there was a fear of recurrence, the penis was only amputated for two-thirds and the inguinal glands were not touched. Besides the thymus treatment was given for three months. There was no sign of recurrence 15 months later.

CASE 5.—*Spindle-celled sarcoma of the left scapula and a large tumour in the pelvis.*—A man, aged 53 years, noticed some lameness in the left leg for a long time. For the first time he found a tumour in the pelvis about three months ago, and then a secondary tumour in the scapula about a month ago. On examination a hard tumour of about the size of a big fist was found in the left pelvis. The tumour could be seen prominent just above the left Poupart's ligament on lying down. It was hard, unmoveable, and painless. There was some trouble in walking. The tumour at the back, of the size of a small fist, seemed to be of the same consistency and rose from the left scapula. It moved with that bone and was not attached to skin. The scapular tumour was removed and diagnosed as a spindle-celled sarcoma. As to the pelvic tumour nothing was attempted, but the thymus treatment was given. Before his death, four months after, the pelvic tumour became smaller to a slight extent by measure. The scapular tumour did not recur.

CASE 6. *A large tumour (sarcoma ?) of the abdomen.*—A man, 62 years old, had a slight attack of acute appendicitis in June, 1909. It recurred in August and since that time a hard lump existed in that region. It had been getting larger, and I examined him in March of this year. The tumour occupied nearly the whole right side of the abdomen and was prominent. It was soft and in the centre there seemed to be semi-fluctuation. It was slightly painful, but there was no other trouble. It was said to have become softer within the last few days. The temperature had been always low. There was no trouble with the bowels. A diagnostic puncture was made and only dark-coloured blood was withdrawn. After consultation it was diagnosed as a malignant growth, probably sarcoma, and no operation was attempted. The patient was given the thymus powder and the slight pain disappeared, but the tumour got gradually larger and was said to have spread all over the abdomen by the time of his death three months later.

CASE 7.—This case was not one of my own, but was told me by Dr. Kishi, to whom I told my own experiences with the thymus gland. He tried it on his patient with a malignant ulcer of the throat and he told me its result some time after. This patient was suffering a good deal from pain, but after two doses the pain was said to have disappeared.

For making the powder I used the fresh calf's thymus gland. It was dried under low temperature and ground into powder. I never tried the watery extract and only used the dry. It was given by the mouth and the doses were from 0·01 to 0·05 gramme twice a day between meals. It was usually best to give it in small doses at first, because it had a tendency to cause indigestion. In fact, after a few trials it was my habit to give sodium sulphate combined with it. In giving this treatment you must be careful with its preparation and also watch the effect of thymus on the general constitution.

The Results of My Experiences.

1. Pain. It is wonderful how the pain disappears. I cannot give any reason, but it is proved by my own cases. 2. The thymus powder seems to have some power of disintegrating the tissues of the malignant tumour by suppuration or necrotic changes. 3. The size of the tumour was in one case diminished, and in two cases became smaller by disintegration. 4. It seemed to retard the growth of the tumour. 5. It has more effect on carcinoma than on sarcoma. 6. Indigestion is liable to occur.

In conclusion, although the cases are few, yet I should like to say that this treatment might be adopted in inoperable cases, because it lightens the course of disease and makes the final end more comfortable and easy. Of course, this treatment will not bring about a radical cure, but I think it is useful in the advanced cases.

III. TWO CASES OF INTESTINAL PERFORATION IN TYPHOID FEVER.

In Japan typhoid fever cases almost exclusively belong to physicians, and we surgeons are rarely given an opportunity to operate on them. Before describing the two cases allow me to give a brief general account of typhoid perforation. The following table is taken from the reports of Pennsylvania University Medical School:—

—	Total.	Death.	Perforation.	Operation.	Non-operation.	Cured by operation.
1901-2	509	35	8	5	3	0
1902-3	749	55	16	12	4	5
1903-4	690	63	26	20	6	7
1904-5	462	34	10	8	2	0
1905-6	596	55	18	9	9	0
1906-7	700	64	18	17	1	4
1907-8	524	43	14	9	5	4
—	4230	349	110	80	30	20

Percentage of death, 8·22; perforation, 2·6; perforation to mortality, 31·5; and cure by operation, 26·33.

Situation of perforation.—It is generally found in the ileum, especially within 1 foot of the ileo-cæcal valve. Some cases occurring in the cæcum, appendix, colon, and sigmoid have been reported, but they are few in number. In the small intestine the perforation is very small, and usually only one, but sometimes multiple (pin-point perforation), situated at the thinned base of the ulcer. In the large intestine it is larger and measures from 1·5 to 3·0 cm. across.

Period of perforation.—This occurs mostly towards the end of the second week or during the third week, but it may occur within the first few days or during convalescence.

Symptoms and signs.—They are indefinite and the diagnosis is often very difficult. They may occur suddenly or gradually. Early signs: 1. Pain, sudden and severe. Mostly spasmodic, but may be continuous. Generally limited to the right side of the abdomen, but at times felt in the left side, bladder, testicle, &c. 2. Rigor, vomiting. Recognised in a few cases. 3. Tenderness, generally present. 4. Rigidity of the abdominal wall. Marked on the right side. 5. Increase of the arterial tension. 6. Abdominal distension not marked at first, and, in fact, often flat or even hollow. 7. Abdominal respiration gradually disappears. 8. Liver dulness sometimes disappears, often very quickly. 9. Hæmorrhage and accumulation of gas are often suggestive signs. Later signs: 1. Abdominal face, peculiar to acute peritonitis. 2. No mental disturbance. 3. Pulse, small and quick. 4. Respiration quick and shallow, thoracic, and not abdominal. 5. Abdomen becomes markedly distended, tympanitic, and tender all over. 6. Dulness of the flanks, changeable on movement, recognised sometimes. 7. Peristalsis not seen. 8. Vomiting. 9. Skin cold and clammy. 10. Temperature becomes low, at times subnormal, but soon rises above the former temperature and becomes high. 11. Blood sometimes recognised in the fæces.

Treatment.—There is nothing but laparotomy and closure of perforation. Laparotomy was first recommended by Professor Leyden in 1884 and was first put into practice by Professor Mikulicz in the same year. Since then Wilson, Keen, Elsberg, and several others have followed. The results have so far been not very satisfactory, but there has been gradual improvement within the last few years.

CASE 1.—The patient was a man, aged 26 years, a farmer. He was naturally strong. He had had measles when a baby, and had been vaccinated several times. He had never suffered from any serious illness, and had never smoked or drunk. On the Christmas Day of 1909, when he was getting up from a chair, he suddenly felt a pain shooting from the right side of the abdomen to the back. After that he had a slight attack of rigor and coughing with some rise of temperature. He was seen by a medical man and was told that he had caught cold. On the 29th he went to his home in the country, and although he had no abdominal pain again his appetite decreased and he felt generally weak. Besides, he had some fever and at times rigor followed by high temperature. On Jan. 9th, 1910, he went up to Tokyo as he was feeling better, and for three days worked on his farm. But all the time he was never well and took to bed again on the 14th owing to several attacks of rigor. Since the beginning of his illness he had had attacks of diarrhœa several times a day. At 2 A.M. on the 16th he felt a desire and went to the lavatory. There was no motion, but he suddenly felt a severe abdominal pain which doubled him up. He called in a doctor without any effect, and coming to Tokyo Hospital two days after was admitted at once. The doctor who attended him told me that the patient vomited fæcal matter twice early on the 18th before coming to the hospital.

Examination on admission resulted as follows: Normal constitution. Nutrition somewhat below normal; no anæmia; nothing abnormal in head, limbs, &c.; knee-jerks slightly decreased; facies abdominal. Digestive system: Appetite completely gone; severe thirst; sick feeling and vomiting; foul breath. When foul gas comes out into the mouth he complains of severe pain running from the epigastric region to the right side of abdomen. Had no motion since the 16th. The tongue covered with thick yellowish-brown fur. Abdomen markedly distended. Abdominal wall rigid and does not move with respiration. Resistant and tender all over, especially on the right side. On percussion tympanitic all over except on the left side, where a slight dulness obtained. Splenic dulness not obtained and liver dulness normal. Cardiac system: Pulse rapid and of weak tension. Apex beat is situated within one finger's breadth of left nipple line. Heart sounds normal and somewhat exaggerated. Peripheral arteries could not be felt. Respiratory system: Chest normal. Respiration short and shallow. Nasal respiration noticed. Nervous system: Nothing abnormal found. Urine: No difficulty in passing. Slight trace of albumin.

Immediately after admission a rectal bougie was passed for 1 foot 2 inches and about 50 grammes of yellowish-white cream-like mucous fæces obtained. A 1000 grammes rectal saline injection was given but was discharged at once. About 2 A.M. on the 19th 300 grammes of foul yellowish-green lumps were vomited. At 4 A.M. he complained of severe abdominal pain and looked very ill. His temperature was 37·8° C., and his pulse was 120 and weak. At 9 A.M. operation was performed under chloroform and ether. The duration of the operation was 43 minutes.

Operation.—An incision was made 12 cm. long along the linea alba, and on reaching the peritoneal cavity the great omentum and intestine were found slightly inflamed and beginning to adhere. From the cavity a large quantity of foul sero-purulent fluid was discharged, and as it seemed to come out chiefly from the appendix region another incision

along the semilunar line was made. On examining the appendix region the appendix was found to be slightly swollen and red and adherent to the cæcum. It was excised at the root. Further examination showed the pelvis full of fæcal-smelling fluid and yellow, thick, pultaceous fæcal matter, and the ileum was found to be perforated in two places—one about 20 cm. from the valve, and the other 10 cm. further distant. They were pin-hole perforations, and discharging the intestinal contents. The intestine and omentum were adherent to the pelvic contents. The perforations were closed with Lembert suture, and the pelvis, &c., were wiped clean as much as possible by gauze (no washing was done). The abdominal wound at the linea alba was closed, but the other was left open. The patient woke up from the anæsthetic at 1 P.M., and then slept without complaining of pain. At 4.30 P.M. there were no vomiting and no abdominal pain except when coughing. The temperature rose to 39·3° C. There was marked thirst. Rectal saline injection was commenced. At 8 P.M. there was not much change. The pulse was 132, somewhat irregular but of good tension. Respiration was 42. Nasal respiration was noticed. A blister was applied to the arm for serum examination. At 1 P.M. a small quantity of bile was vomited twice. The epigastric region was slightly distended. The patient was sleepless and uneasy. An opium pill was given. On Jan. 20th, at 4 A.M., he vomited a small quantity of bile. Half an hour later hiccough appeared and continued for a time with short intervals. At 6 A.M. he vomited again. The epigastric distension increased and there was slight general abdominal distension. Tympanites was present. The pulse was 120 and the respiration was 30. The temperature came down and never rose above 37·2° C. Diazo reaction was positive. At 10.30 A.M. the distension had increased a good deal. The stomach contents were aspirated and about 500 grammes of green-coloured bile and a large amount of gas were discharged. Washed out with saline solution. The distended epigastrium immediately retracted and the patient felt much better. Tincture of digitalis and strychnine were prescribed. After this the respiration became much better and no working of the alæ nasi was present. At 6 A.M. the general distension was not so marked. There was no resistance. Resonant all over. Tenderness disappeared except round the open wound. The epigastric distension was slight. The pulse was 106 and the respiration was 28. At 11 P.M. sleeplessness, nausea, and hiccough appeared. Subcutaneous injections of morphia 0·01 gramme and atropin 0·001 gramme were given, and immediately the nausea and hiccough stopped. The patient slept from about 12 to 4 A.M. On the morning of the 21st the patient felt much better and the appetite appeared. He asked for milk but it was not given. So far only water had been given. The general symptoms improved. At 10 A.M. there was a reappearance of epigastric distension, nausea, and hiccough. The stomach was aspirated and about 650 grammes of green-coloured fluid were obtained. It was washed out again with saline and the patient felt much better. His general condition was better and he only complained of nausea, hiccough, &c., when the fluid accumulated in the stomach. At 7 P.M. about 250 grammes of stomach contents were again aspirated. At 11 P.M. peristalsis and intestinal rumbling were noticed for the first time. The pulse was 110 to 120 and the respirations were 24 to 30. The temperature was slightly raised and reached 38·2° at midnight. On the 22nd at 4 A.M. gas was passed for the first time, after that several times, and the abdominal distension gradually disappeared. In the afternoon there was a desire for motion without any result. At 5.30 P.M., by an ordinary soap enema, about 50 grammes of green mucous matter were discharged. At the same time a large quantity of gas came out and the abdominal distension decreased rapidly. The pulse was 120 to 126. Respiration diminished from 36 to 18 by midnight. The temperature was lowered from 38·9° C. to 37·4°. On the 23rd Widal reaction was positive. There was no vomiting or hiccough. A small quantity of fluid motion was passed naturally at 9.30 A.M.; after that six times before 11 P.M. For the first time milk was given by the mouth. The temperature never rose above 38·0° C. After this day the general conditions improved daily in spite of some rise of temperature. On the 27th the gauze in the wound was completely changed for the first time, and although there was some foul discharge for a time it got gradually clean. The patient was discharged completely cured after 70 days, and he is now working as well as ever.

CASE 2.—A man, aged 50 years, a commercial, was admitted to hospital on Oct. 26th, 1909, and discharged March 28th, 1910. He had suffered from dysentery, and since then had some trouble with rectal prolapse. On Oct. 19th he suddenly felt rigor and shivering, with general malaise. The appetite diminished, and after several attacks of rigor he took to bed on the 23rd. He was seen by a doctor on the 24th, and on that day the temperature was 39° C., with marked thirst, pain in the parietal region, general weakness, lumbar dull pain, and slight distension of the abdomen without any pain. As the symptoms seemed to get worse the patient came to Tokyo Hospital and was admitted. Digestive system: Appetite bad. Severe thirst. Tongue covered with thick fur. Abdomen generally slightly distended and resistant. No apparent enlargement of spleen. Tenderness in the appendix region. No motion for the last four days. On admission the temperature was 39·1° C.; the pulse was 104, good and full tension; and the respiration was 28. Since admission the general conditions improved and the temperature came down gradually, but on the fourth day hiccough appeared. On Nov. 1st there were about 300 grammes of rectal hæmorrhage, followed by subnormal temperature (36·3° C.). On the 2nd the patient suddenly complained of somewhat severe pain round the umbilicus, and the abdomen became rapidly distended, with increasing difficulty in breathing. Hiccough continued and nothing was kept down. Liver dulness was indefinite. Urine, 0·5 per cent. of albumin. Diazo reaction positive. Blood corpuscles were recognised in the fæces. Widal's reaction was positive. As the symptoms continued laparotomy was performed on the 3rd.

Operation.—An incision was made along the right semilunar line so as to expose the appendix region, and on entering the peritoneal cavity the large intestine was found to be much distended, due probably to paralysis. The ileum for about 5 inches close to the cæcum was collapsed and bound down by recent inflammatory adhesion. No perforation was seen, but at the adherent portion of the ileum a necrotic ulcer with thinned base was recognised. In the pelvis there was a slight quantity of serous fluid. The distended intestine was punctured and gas let out. Finally, although no perforation could be discovered, yet there was much doubt in the thinned ulcer; that portion was brought out to the wound and stitched there so as to prevent future disaster. After operation the distension and pain disappeared, but hiccough still persisted. In a short time the temperature became higher, the abdomen again distended, there was increasing difficulty in breathing, and no passage of gas or fæces. The same symptoms continued for two days, and on the third day 0·0003 gramme of etherine was injected subcutaneously three times with two hours of intervals. At the end of this time there was passage of gas, and the abdominal distension became gradually lessened. General improvement set in with increasing appetite, and on Dec. 25th the temperature became normal. An interesting fact was that about a fortnight after operation an escape of gas was noticed, followed a few days later with slight discharge of fæces through a small perforation at the suspected thinned base of the ulcer. The patient was soon out of danger, but owing to non-healing of the fæcal fistula he was not discharged until March 28th, 1910. Before operation the temperature was 36·8° C., the pulse was 98, and the respiration was 22. After operation the temperature was 37·6° C., the pulse was 110, and the respiration was 20. The duration of the operation was 27 minutes.

Summary.

1. Period of perforation: Case 1, twenty-second day. Case 2, thirteenth day. In this case the perforation was not definitely confirmed but only suspected. 2. Situation: in the last 1 foot of ileum. 3. Size: pin-hole. 4. Symptoms: both had sudden severe pain. In the second case this was preceded by rectal hæmorrhage. Liver dulness was indefinite. 5. As regards the treatment, laparotomy with rectal saline injection in moderate Fowler's position. Some medical men object to laparotomy on the patient's supposed weakness, but I found them resistant beyond my expectation and bore the ordeal well. So I recommend immediate operation except in cases suffering from profound shock.

(To be continued.)

ON THE CONDITION CALLED "FALLING OF THE WOMB,"

WITH SPECIAL REFERENCE TO THE OPERATIVE TREATMENT OF THE MORE SEVERE CASES.

BY JOHN BENJAMIN HELLIER, M.D. LOND.,

PROFESSOR OF OBSTETRICS IN THE UNIVERSITY OF LEEDS; OBSTETRIC PHYSICIAN TO THE LEEDS INFIRMARY.

DURING the last four years I have been adopting for the radical cure of severe cases of procidentia a multiple plastic operation which includes vagino-fixation of the anteverted uterus, and the results obtained have been so satisfactory that I wish to report progress in a concise practical paper.

Nature of the Lesions to be Treated.

The lesions associated together in the condition under consideration constitute one of the most palpable and unmistakable of gynæcological diseases. When fully developed the following constituents are present: (*a*) Descent of the uterus with retroversion and some retroflexion; (*b*) hypertrophy of the uterus, especially of the cervix, with hypertrophy of the labia uteri, most marked when there is laceration of the cervix; (*c*) descent of the anterior vaginal wall accompanied by the bladder forming a "cystocele," so that a large part of the bladder may be outside the vulva; (*d*) descent of the posterior vaginal wall; (*e*) there may be descent of the rectum into the hernial tumour forming a "rectocele," but the rectum does not necessarily follow the descent of the posterior vaginal wall in the way that the bladder descends with the anterior wall; (*f*) the pouch of Douglas tends to descend into the hernial tumour and in extreme cases both omentum and gut may be found there, but this is not common.

The variations in the degree to which these different factors enter into the procident tumour are notable. A large procidentia may be found to consist of cystocele or rectocele without any protrusion of the uterus, but in all cases the patient complains of "falling of the womb." Let us take a typical case of severe procidentia such as may be seen at any out-patient clinic. A woman advances with slow, cautious tread, carefully avoiding any jerk as she plants her feet and letting herself down gently into a chair; for a woman who walks with a long stride and firmly planted heels and "throws herself on to a seat" has no uterine displacement. Many of the patients are poor, overworked, and ill-nourished; some are obese, with signs of emphysema and chronic cough, and are made worse by abdominal expiratory pressure; some are in fair general condition.

In making a local examination it must be remembered that the semi-prone position tends to minimise the local signs by causing reduction of the tumour. In this position it is often

useful to seize the anterior lip of the cervix with a vulsella and gently draw the uterus outside in order to estimate the full extent of the displacement. If the patient be examined in the erect position after she has been walking and exerting herself the full size of the hernial protrusion can be observed, and as she coughs the great expiratory force perceptible will give a good idea of the problem before the operator, who seeks to permanently reduce the procidentia and neutralise the forces which tend to make it recur. This is a matter that must be clearly understood before proceeding to radical operation.

When the vaginal walls are constantly inverted they become almost exactly like skin without hair follicles. They may show redness or excoriation or even extensive ulceration, the ulcer being on the cervix or vaginal wall and due to pressure or friction. Purulent discharge or hæmorrhage may be associated with the ulceration. When the cystocele is marked, the meatus urinarius is often somewhat dilated, and there may be prolapse of the urethral mucosa; also there may be some loss of control of the sphincter vesicæ, with escape of urine on coughing, and this will increase the soreness and excoriation of surrounding parts, including the thighs. Some amount of cystitis frequently complicates cystocele, and after operation the patient will not be comfortable till this is cured.

The os uteri externum is usually prominent, slightly patulous, with hypertrophied labia. If the cervix be grasped between the finger and thumb the increased size and thickness can be estimated and the thickening of the vaginal mucosa will be noticed also. The uterine sound passes upwards and backwards for more than the normal distance, say 3½ inches, 4½ inches, or even 5 inches. The retroflexed fundus can be sometimes felt outside the vulva behind the cervix. Schroeder in his "Krankheiten der Weiblichen Geschlechtsorgane" gives a figure of a uterus procident in anteflexion, but I never saw such a case myself. In very chronic cases in women past the menopause the uterus may be small and atrophic and the cervical canal occluded. The amount of rectocele can be estimated by digital rectal examination. When hardened fæcal masses pass into a rectocele there will be discomfort and difficulty in emptying the rectum.

The symptoms complained of vary much in degree in different cases. Almost always there is a sensation of weakness, dragging and bearing-down, and of incapacity to work. When the parts are inflamed, ulcerated, and bleeding there is more suffering, and the patient may even be bedridden. Still, on the whole, the conditions under discussion cannot be described as acutely painful. It is surprising how much some women accomplish in severe cases without seeking relief, and how relatively slight the symptoms may be when the hernial tumour is large. On the other hand, women may complain loudly of bearing-down and of sacral and inguinal pain when only a moderate degree of retroflexion with little descent of the uterus can be detected. But in all gynæcological work we may observe a notable want of correspondence between the symptoms complained of and the lesion found. This is partly a matter of constitution. In Leeds we see a large number of Polish Jewesses, and their complaints of subjective symptoms are always greatly in excess of the complaints of ordinary patients with similar lesions. It need hardly be said that chronic inversion of the vagina, with the consequent inhibition of function, is a cause of distress to the patient, who is practically unsexed.

Procidentia does not become extremely bad all at once. Most of the patients trace their trouble to one or more previous labours. A common history is that there was prolapse after one labour; then that the falling got a good deal better, being easily kept up by a pessary of the Hodge or ring type; that after the next labour the condition was worse and pessaries less effective, and that things have grown gradually worse ever since. Probably the condition has been aggravated by some recent strain, such as lifting an invalid or an attack of bronchitis. A large number of cases seem to occur in young women who have had a child, have returned at once to hard domestic service, concealing their uterine trouble and working hard to support the child. The worst cases are seen among the indigent, and insufficient animal food and the consequent muscular weakness are contributing factors. Neglect is almost always another factor. Some women will suffer for years with steadily increasing "falling" without seeking any advice or relief whatever.

Palliative Treatment.

Even the worst cases will improve temporarily by confinement to bed. Ulcers will heal, irritation diminish, and the uterus as measured by the sound will become an inch or two less if retained in position. This is worth noting when preparing a patient for operation. When after labour there is any tendency to prolapse it is important to remember that with rest and proper mechanical support there is a distinct tendency to cure which is not observed in chronic cases. It is an excellent thing to insist that if on rising from child-bed bearing down is felt the patient should be treated by recumbency and vaginal support till this symptom is lost. Much subsequent suffering might thus be saved.

In well-marked procidentia simple vaginal pessaries are very ineffective. Ring pessaries and Hodge's pessaries, which obtain support from the vaginal walls, are soon expelled, especially on straining and in defæcation. The expanding pessary of the Zwanck type is bad in principle, for it can hold its position only by pressing to a dangerous extent on the vaginal walls, and if through corrosion of the screw the pessary becomes fixed and impacted most disastrous ulceration may result. I have seen such a patient with one blade in the bladder and one in the rectum. The kidney-shaped "shelf pessary," which the patient herself cannot withdraw, is more dangerous still. It is long since any patient came to this infirmary with a vulcanite or boxwood ball in the vagina. At one time these were not uncommon, and sometimes they were found firmly impacted and very difficult to extract. The last one I had to treat I extracted with an obstetric fillet.

For the support of procidentia to obtain relief patients may wear a perineal pad with attachment to an abdominal belt. This does not cure, but gives decided relief to the bearing down and prevents some of the worst and inoperable cases from being quite incapacitated.

The best palliative, however, is a vaginal cup-and-stem with external support by elastic cords to the waist. There are several patterns on the market. A good form, modelled on that depicted by Robert Barnes in his "Diseases of Women," is made for me by Wood and Co. of York. The cups are made in four sizes, and the stems (which are interchangeable) in two sizes. A simple waist band is supplied with each pessary, but it is far better to order the patient a well-fitting abdominal belt and to attach the supporting cords to that. The pessary is taken out every night, cleaned, and replaced in the morning, and thus it does not become foul; moreover, the pressure is taken off the vaginal wall all night, so that there is little danger of ulceration, especially if the vagina is properly douched.

Operative Treatment.

In all hernial protrusions the modern surgeon aims at radical cure rather than palliation by trusses. Procidentia means constant discomfort, for the best fitting pessary is but a foreign body which tends to cause irritation and leucorrhœa, and it usually becomes less efficient as time goes on. Operation should be advised in all suitable cases, and should not be deferred till the case becomes very bad.

Certain preliminary considerations must be taken into account in planning an operation.

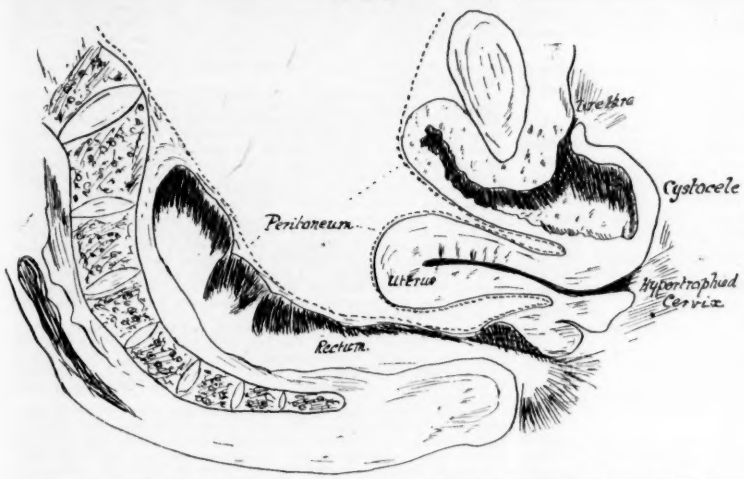
1. Any operation that is performed will be very severely tested by time and expiratory strain, by the constant strain of defæcation when constipation is present, by chronic coughing, and by hard domestic work. It is easy to obtain an immediate result that looks satisfactory, but much more difficult to obtain permanent cure. Two years or less will undo the work of most of the older plastic operations.

2. The least stable procedure is anterior colporrhaphy performed for cystocele. Here there is so little tissue to work upon except loose connective tissue and mucous membrane.

3. The posterior vaginal wall and subjacent tissues offer much better material for plastic surgery, for one can stitch muscle to muscle and fascia to fascia, and by the method of buried catgut suture a substantial perineal body can be built up, as is shown by the great success of our present methods of perineorrhaphy.

4. We must not fall into the fallacy of thinking that the conditions loosely called "falling of the womb" can be cured by vaginal hysterectomy. After such an operation the patient is only too likely to come back with a large hernial tumour consisting of inverted vaginal walls with cystocele. The removal of the uterus leaves a gap in the pelvic floor which is a cause of weakness.

FIG. 1.



Illustrates the relation of the parts in a case of procidentia of moderate severity with bad cystocele.

5. To treat procidentia by hysterectomy and excision of the vagina is to acknowledge oneself beaten, and entails a mutilation to which a woman may well refuse to submit.

6. Fixing the fundus to the abdominal wall by ventrifixation without any further measures will not cure descent of the vaginal walls. I have more than once seen patients on whom ventrifixation had been performed who returned after some months with the cervix protruding from the vulva, the fundus still fixed above, but the whole uterus so stretched that the sound could be passed five or six inches within the os externum. This applies also to operations upon the round ligaments as a remedy for procidentia.

7. If there be hypertrophy and elongation of the cervix amputation greatly assists cure, for a thickened enlarged cervix acts as a kind of foreign body in the vagina, being pushed downwards during defæcation and other expiratory strains and acting like a wedge in dilating the vagina after it has been narrowed by operation.

8. Narrowing the vagina by anterior and posterior colporrhaphy is not a satisfactory operation by itself for curing procidentia, although cases of moderate severity can be improved for a time. The cervix tends to descend, dilating the vagina and reproducing the original condition. The cystocele is very likely to recur.

9. Further child-bearing tends to undo all operations for procidentia. It is not safe to perform the most radical operation, such as that to be described immediately, unless the woman is past child-bearing or unless the operation is combined with partial salpingectomy to cause sterilisation.

In general I do not operate by the radical method before 35, and I choose cases with care after the age of 60 has been reached. After that age the shock of a long operation is not so well borne, and one must be quite satisfied as to the condition of the vessels and of the principal organs before attempting it.

The operation I am about to describe is a multiple plastic operation with vagino-fixation of the uterus so as to support the bladder, with amputation of the redundant cervix, with anterior and posterior colporrhaphy and perineauxesis and with partial salpingectomy if indicated. The two special features are the use of the uterine body to buttress up the bladder and cure the cystocele, and also the *thorough dealing with all the different constituents* of the procidentia. The operation so far as I know is Wertheim's, and it will be found described in his "Technik der Vaginal-enbauchöhlen Operationen" and in Doederlein und Kroenig's "Operative Gynaekologie." It may be assumed that no one is likely to undertake the operation who is not familiar with the application of aseptic principles to vaginal surgery, and who has not some experience of plastic gynæcological work. Be careful to cover the anus by fixing a towel across the perineum as part of the aseptic technique. Ordinary blunt towel clips will hold it up without wounding the skin of the patient.

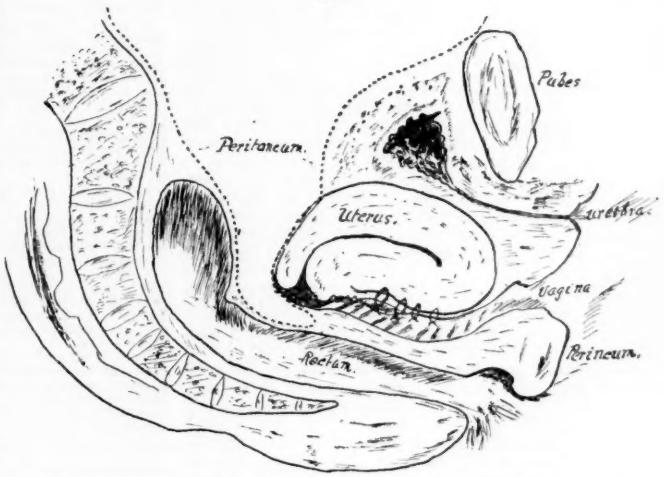
The Operation.

I. Draw down the cervix to the full extent. Dissect off a flap of mucous membrane from the anteriorv aginal wall, commence just below the meatus urinarius, and take away the redundant tissue which sometimes projects there. The width of the flap depends on the size of the cystocele.

II. Separate the bladder from the cervix and push it up as far as possible. Also separate the cut vaginal edge from the bladder for a short distance all round the incision, so that the bladder can be pushed up a little further all round.

III. Measure the uterus with the sound. Make an incision round all the cervix and strip the tissues as high as you wish to amputate. It is easy to strip the cervix, and with care one can usually avoid opening the peritoneal cavity posteriorly. But if this is opened it can be easily closed with a purse-string suture. Split up the cervix on each side with scissors till the sound passes little more than the normal distance and then amputate the labia. Before amputating, hæmorrhage can be saved by passing a catgut suture through the base of the broad ligament on each side. I always amputate the anterior lip first and pass a strong catgut suture through the centre of the anterior edge of the cervix leaving the ends long. These held with a clip form a useful guide to bring the anterior lip into view at any time during the operation. The vaginal edge is then stitched to the cervical mucosa all round the cervix.

FIG. 2.



Shows relation of parts as altered by operation. The uterus is seen fixed in anteversion, sutured to the anterior vaginal wall. The utero-vesical pouch of peritoneum is obliterated, and the posterior uterine wall, now become anterior, supports the posterior vesical wall, which is so pushed up that the cystocele has disappeared.

IV. Open the anterior cul-de-sac and draw the fundus of the uterus into the vagina through the peritoneal incision. Two small hooks on long handles, like Sims's uterine hooks, will make it easy to draw down the fundus if they are passed "hand over hand."

V. At this stage it is easy to excise a small segment of each oviduct. If myomatous nodules are seen on the uterus they can also be excised at this point.

VI. Fix the uterus in anteversion to the vaginal edge, bringing the fundus near the meatus urinarius and being careful to push up the bladder. In my earlier operations I passed the sutures through the uterus and then returned the fundus into the abdomen and brought the sutures through peritoneal edge and vaginal edge and then tied them. In my later cases I have not returned the uterus through the peritoneal incision, but stitched it to the vaginal edge as directed by Wertheim. I have not hitherto stitched the peritoneum to the posterior uterine wall as he does, and this does not seem to make any difference. I use catgut throughout. Fixing the uterus in this new position is now called *Interpositio uteri vesico-vaginalis*.

VII. Close the anterior vaginal incision with continuous catgut sutures. Commence from the uterine end, which is easily brought into reach by drawing on the long catgut suture passed as a guide in stage III.

VIII. Dissect a triangular flap from the posterior vaginal wall. Close with interrupted catgut sutures, being careful to draw the deeper parts together with buried catgut sutures. A good perineal body can thus be built up and the perineum can be increased at discretion. The hæmorrhage is checked as the sutures are tied.

When the operation is finished the anterior vaginal wall is concave instead of bulging. The vagina should be so narrow that it seems as though too much narrowing had been done. When the sutures have come away the narrowing will be only moderate. The amputation of the redundant cervix or of prominent labia is important, for if they be left the cervix may be found later elongated and presenting at the vulva. The posterior colporrhaphy must not be omitted. It is very important that the operation should be thorough. In some of my earlier cases I did not do enough.

In young women where further child-bearing may be expected, and where one does not think it right to sterilise, a moderate amount of vaginal narrowing may be done and the uterus fastened up by ventri-fixation. Some relapse may follow another pregnancy, but I do not know how to allow for further child-bearing without running risk of recurrence of the procidentia.

From the spring of 1906 to the present time I have performed this operation about 84 times. With the exception of one case that died, which is referred to below, the immediate result has been good in all; that is to say, the wounds have all healed well and convalescence has not been retarded by any serious complication. It is too early to estimate the permanent result of many of these, and in all of them one would desire a later report than is at present available, and which I hope in due time to publish. I have investigated the present state of the first 40. Several I have failed to find, as happens in all inquiries after old hospital cases. But in those I have examined or heard from the results are so much better than anything I have obtained before that I give a short interim report of them. I have told the worst I know as well as the best about the series. I have no reason to think that my later cases are not turning out as well as the former; I think they are rather better. In the after-treatment the vagina must be douched sufficiently to make sure that clots of blood are not lodged in the upper part of the narrowed vagina, and that there is no accumulation of discharge there.

In reviewing such cases it is important to note not only the present anatomical condition of the parts but to inquire whether the patient has lost her subjective symptoms also. When a woman has neuralgic pelvic pain, only a very rash and inexperienced man would venture to promise complete and lasting cure by any operation known to surgery. In any case of uterine displacement it is notoriously difficult to get rid of the last trace of "bearing down" on exertion. Allowance must be made for this in estimating the results in a series such as that which follows. Nevertheless I have been much struck with the success of the operation and with the improvement in general health and condition which many of the patients have experienced.

Cases of Radical Operation for Procidentia.

CASE 1.—V.-para, aged 34; procidentia with bad cystocele; two previous operations by others had failed. On March 10th, 1906, she was treated by anterior and posterior colporrhaphy, with vagino-fixation and salpingectomy. Three and a half years later she reported herself as better, being able to do all her work except heavy washing, which caused bearing-down pain. She was emphatic as to the benefit received from the operation.

CASE 2.—Nullipara, aged 45; procidentia of two years' standing, bad cystocele, ulcerated vaginal mucosa, and sound passed 5½ inches. On June 23rd, 1906, there were performed anterior and posterior colporrhaphy, with amputation of 2½ inches of the cervix, enucleation of small myoma, and vagino-fixation. A note was made at the time of the operation that the case was so bad that a cure would be a specially good test of the operation. Three years and four months later I examined her and found no prolapse whatever, and there were no symptoms.

CASE 3.—V.-para, aged 39; bad case of procidentia; sound = 5½ inches. Here also a note was made that this would be a test case. On July 3rd, 1906, anterior and posterior colporrhaphy were performed, with amputation of 2½ inches of the cervix and vagino-fixation. Three years and four months later the patient wrote: "Before operation I was a great sufferer. I was bedfast, on and off, for seven years, and was in a cruel state. I am all right now and can walk about. I think that the operation has cured me, and I feel quite well. No more children since."

CASE 4.—VII.-para, aged 56; procidentia and prolapse of both vaginal walls "as big as her fist." On July 14th, 1906, anterior and posterior colporrhaphy with vagino-fixation were undertaken. Three and a quarter years later the patient wrote: "I am very glad to say that I have not had any further trouble; since the operation I have not had anything to complain of."

CASE 5.—X.-para, aged 48; procidentia for two years. On June 25th, 1906, anterior and posterior colporrhaphy were performed, with amputation of 2½ inches of the cervix and vagino-fixation. Three years and four months later the patient wrote: "Operation successful, feel quite well."

CASE 6.—Multipara, aged 51; bad cystocele which no instrument would keep up. On May 23rd, 1906, anterior colporrhaphy with vagino-fixation was performed. I saw the patient three and a half years later. The cystocele was very much better, but not perfectly cured. This was one of my earlier operations in this series, and was not sufficiently extensive.

CASE 7.—III.-para, aged 49; cystocele and rectocele. On July 28th, 1906, anterior and posterior colporrhaphy were performed, with amputation of anterior labium and vagino-fixation. Three and a half years later, when the patient was seen by me, the result was excellent, the vagina was narrow, and there was no prolapse. She said that she felt some bearing down when she was costive.

CASE 8.—XI.-para, aged 47; bad cystocele, with matted and adherent appendages due to old inflammation. On Sept. 6th, 1906, anterior colporrhaphy was performed, with removal of the appendages and vagino-fixation. I heard from the patient in October, 1909. The report is uncertain; the patient seemed to have pains in the body, but she did not complain of prolapse.

CASE 9.—IX.-para, aged 49; chronic procidentia, "always outside." On Sept. 9th, 1906, anterior and posterior colporrhaphy were performed with vagino-fixation. When the patient was examined by me three years later the result was excellent, and she could walk well.

CASE 10.—VI.-para, aged 40; enormous procidentia with hypertrophied cervix; sound = 5 inches; eight years' history. On Jan. 22nd, 1907, anterior colporrhaphy, amputation of the cervix (two and a half inches), salpingectomy and vagino-fixation were performed. Two years and nine months later, when the patient was examined by me, the result seemed perfect. She said that she was "champion" since the operation, while she had been "miserable" for eight years previously.

CASE 11.—II.-para, aged 42; moderate amount of prolapse; much complaint of abdominal pain and bearing down; highly neurotic. On Feb. 26th, 1907, anterior and posterior colporrhaphy, with vagino-fixation were performed. The after-history is noteworthy. I saw her several times. The anatomical result seemed excellent, but she complained loudly of bearing down "all over the abdomen," and thought that all her viscera were falling. Her medical man agreed with me that she was neurotic to the verge of insanity. I cannot see that the operation has made her mental state better or worse.

CASE 12.—VI.-para, aged 58; procidentia with marked cystocele. In March, 1907, anterior colporrhaphy with vagino-fixation was performed. In October, 1909, the uterus was found in very good position, and no symptoms were complained of. There was a very little prolapse of the anterior vaginal wall on coughing, but not more than many women have who make no complaint.

CASE 13.—VII.-para, aged 40; procidentia with defective perineum. On April 15th, 1907, anterior colporrhaphy was performed, with salpingectomy and vagino-fixation and posterior colpoperineorrhaphy. When the patient was seen by me one and a quarter years later the parts were in excellent position; she complained of a little bearing-down pain on exertion.

CASE 14.—V.-para, aged 54; procidentia and cystocele of moderate severity; perineum lacerated. On Dec. 14th, 1907, anterior colporrhaphy, vagino-fixation, and posterior colpoperineorrhaphy were performed. In November, 1909, the patient said that she was quite well; the parts were in excellent position; on coughing there was very slight prolapse of the anterior vaginal wall.

CASE 15.—IV.-para, aged 48; severe procidentia; uterus always outside; sound = 7 inches. In November, 1907, anterior and posterior colporrhaphy, amputation of the cervix, and vagino-fixation were performed. When the patient was seen two years later the parts were in excellent condition; there was no prolapse on coughing; the vagina was 2 inches long.

CASE 16.—V.-para, aged 58; procidentia almost always outside; ulcerated hypertrophied cervix. On Nov. 23rd, 1907, anterior and posterior colporrhaphy were performed, with amputation of the cervix (2½ inches) and vagino-fixation. When the patient was seen by me in April, 1910, the result appeared to be perfect; there was no prolapse at all, the general health was improved, and she was very grateful for the operation.

CASE 17.—X.-para, aged 46; procidentia with hypertrophied cervix. On Dec. 7th, 1907, anterior and posterior colporrhaphy were performed, with amputation of the cervix and vagino-fixation. Convalescence was complicated by a small abscess in the buttock. When the patient was seen on Oct. 21st, 1909, she said that she was cured except that after a hard day's work she had some tendency to bearing down. The parts were in very good position; on coughing there was a slight tendency to anterior vaginal prolapse.

CASE 18.—VI.-para, aged 69, but said that she was 54; chronic procidentia always outside and large cystocele; pain on sitting or walking. She was treated on Feb. 19th, 1908, by anterior and posterior colporrhaphy, with amputation of the cervix and vagino-fixation. She died in 15 days with suppurative peritonitis, adherent pericardium, and granular kidneys. She was really too old and in too poor a condition for the operation. This is the fatal case alluded to above.

CASE 19.—II.-para, aged 36; complete procidentia. On May 2nd, 1908, anterior and posterior colporrhaphy were performed, with salpingectomy and vagino-fixation. One and a half years later the patient said that she was very much relieved, but had some bearing down after a hard day's work, and wore a support to the perineum.

CASE 20.—VI.-para, aged 54; complete procidentia interfering with working; cervix ulcerated, with much blood-stained discharge. On June 10th, 1908, anterior and posterior colporrhaphy, with vagino-fixation were performed. In October, 1909, the parts were in excellent position, and she said that she had had nothing to complain of since the operation.

CASE 21.—XIV.-para, aged 47; fairly bad case of complete procidentia. In June, 1908, anterior and posterior colporrhaphy were performed, with amputation of the cervix and vagino-fixation. In October, 1909, the parts were in very good position, and no symptoms were complained of; there was some prolapse of the anterior vaginal wall on coughing.

CASE 22.—I.-para, aged 33; single woman sent to me from the workhouse by Mr. C. E. Lownds of Great Ouseburn; procidentia; a very severe case; lacerated cervix. In June, 1908, amputation of the labia uteri, anterior and posterior colporrhaphy and vagino-fixation were performed. In October, 1909, Mr. Lownds wrote to say that there was no prolapse on straining, and that he considered her condition quite satisfactory.

CASE 23.—II.-para; aged 42; cystocele. On March 20th, 1908, anterior and posterior colporrhaphy, with vagino-fixation, were performed. In October, 1909, the patient wrote that she had "nothing to complain of."

CASE 24.—XIX.-para (!), aged 51; complete procidentia, almost constantly outside; ulcerated mucosa. On March 22nd, 1908, anterior and posterior colporrhaphy were performed with amputation of the cervix (1 inch) and vagino-fixation. When the patient was seen two and a quarter years later there were a narrow vagina, good perineum, and no prolapse; no symptoms were present except rheumatism in one knee. She said that she "feels a new woman."

CASE 25.—V.-para, aged 43; cystocele. This was an instructive case. On July 7th, 1908, I performed anterior colporrhaphy with vagino-fixation. In October, 1909, I found the cystocele cured, but the cervix in a tumid state formed a swelling at the vulva. I then amputated the cervix and performed posterior colporrhaphy. I had made the mistake of not doing the complete operation.

CASE 26.—V.-para, aged 49; complete procidentia of moderate severity. In July, 1908, anterior and posterior colporrhaphy were performed, with vagino-fixation and removal of piles. When seen in October, 1909, the patient was stone deaf and very difficult to interrogate. The parts appeared to be in excellent condition, but she had some incontinence of urine by day and seemed to be very miserable about it. Probably there was some cystitis.

CASE 27.—XII.-para, aged 45; procidentia with cystocele and hypertrophied cervix. In 1908 anterior and posterior colporrhaphy, with amputation and vagino-fixation were performed. When the patient was seen one and a quarter years later the parts were in excellent position; nothing was complained of. There was a trifling prolapse of the anterior vaginal wall on coughing.

CASE 28.—XIII.-para; procidentia with cystocele and rectocele, "always outside"; cervix hypertrophied. On Nov. 9th, 1908, anterior and posterior colporrhaphy, with amputation of the cervix and vagino-fixation, were performed. A year later the parts were in very good position, and there was no bearing-down at all. The patient expressed herself as much pleased with the relief obtained, having been "bad for years."

CASE 29.—IX.-para, aged 47; complete procidentia with very large rectocele and ulcerated vaginal walls. In April, 1909, anterior and posterior colporrhapy, with amputation and vagino-fixation, were performed. Six months later, on examination, the result was excellent. The patient said that she was "a new woman."

CASE 30.—I.-para, single, aged 35; procidentia on straining and coughing. In June, 1909, anterior and posterior colporrhaphy, with amputation of the cervix, salpingectomy, and vagino-fixation were performed. In October, 1909, the patient wrote: "I am very glad I ever came to the infirmary, for I have felt better than I have done for years, stronger, and gaining strength and flesh every week. I go out charing four times a week."

CASE 31.—IV-para, aged 41; procidentia with hypertrophy. On July 10th, 1909, anterior and posterior colporrhaphy, with amputation and vagino-fixation, and salpingectomy were performed. The patient was seen in September, 1909, when the parts were in excellent position, and there was no prolapse on coughing. She said that she had "been six years in misery and that now it is a pleasure to walk about."

Doederlein and Kroenig give statistics showing the result of plastic operations for procidentia. In about 1000 cases by various operators permanent cure was obtained in 70 per cent., with relapse in 30 per cent., about 5 per cent. being severe relapses, but these figures include relapse after subsequent childbirth. When such are excluded the percentage of success is much greater. Nothing seems to give better results than vagino-fixation combined with thorough plastic operation with sterilisation. I know that some other gynæcologists are now adopting Wertheim's plan of using the uterus to support the bladder and make a strong pelvic floor,[1] and I am convinced that it is a sound method. Professor Wertheim informs me that he is about to publish an account of the late results of his operations.

Leeds.

[1] See a recent paper by Klein, Münchener Medicinische Wochenschrift, 1910, No. 27, S. 1473.

A CASE OF BILATERAL PAPILLŒDEMA AND RING SCOTOMA DUE TO SPHENOIDAL SINUSITIS.

BY C. G. RUSS WOOD, F.R.C.S. ENG., L.R.C.P. LOND.,
SURGEON TO THE SHROPSHIRE AND NORTH WALES EYE, EAR, AND THROAT HOSPITAL, ETC.;
AND
G. F. C. WALLIS, M.D. EDIN.,
LATE HOUSE SURGEON, EYE HOSPITAL, BRISTOL.

CASES of optic neuritis having a nasal origin sometimes present unusual features, and therefore the following has seemed worthy of being recorded.

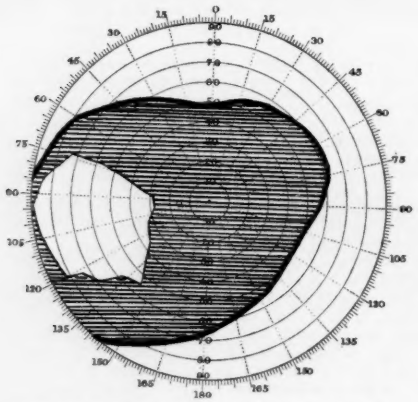
The patient, a dressmaker, aged 29; father died from consumption, and a sister from "kidney disease," otherwise the family history was good. Apart from a mild attack of influenza in 1907 had suffered from no illness. She is a healthy woman with slight enlargement of the thyroid; it has never caused any symptoms and it is common in her part of the county. In the summer of 1906 she was seized with a sudden and severe frontal headache which continued with short periods of remission up to November, 1908, and then as suddenly ceased; although unassociated with nausea or vomiting it was often so severe in character as to confine her to bed. General treatment failing to alleviate the pain, all the teeth were extracted, but without the desired effect. She could assign no cause for the sudden onset and disappearance.

The patient came to the Eye, Ear, and Throat Hospital on Sept. 25th, 1909, complaining of defective sight for the previous two years, during which time there had been some intervals of improvement. In January, 1908, she noticed for the first time, on covering the right eye, that the vision of the left eye was very defective; from that date it gradually became worse, and by the end of the summer 1908 she could only distinguish light from darkness with the eye. The vision remained unaltered until September, 1909, when objects could be seen to the left side, but not directly in front. In September, 1908, the vision of the right eye suddenly failed, although previously unaffected. It remained in this state for three weeks and then rapidly recovered; she was able to read a newspaper at the end of the following fortnight. Shortly after this there was so serious a relapse that it was barely possible to get about her own home. In a week or two improvement began, but the vision remained misty for the following 10 months (September, 1909).

When the patient was seen in September, 1909, R.V. = 6/9, L.V. = hand movements. There was concomitant divergence of the left eye, but convergence was unaffected, and there was much œdema of both discs, but no hæmorrhages. In November, 1909, she was admitted an in-patient, the ophthalmoscopic condition being unchanged. The modified Burnham treatment was carried out for 12 days, at the end of which time, when she left the hospital, R.V. = 6/6, L.V. = 6/36, and the optic neuritis, though less in degree, was still marked. Shortly after returning home she suffered from severe frontal headache, which lasted a fortnight and ceased suddenly.

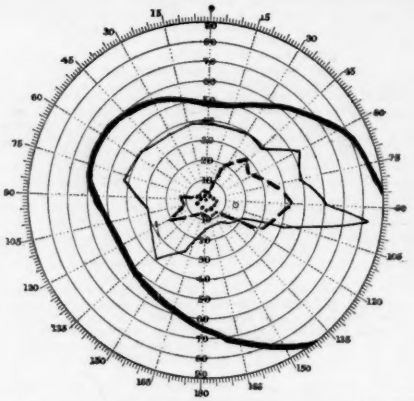
In January, 1910, the patient was readmitted, when R.V. = 6/9, L.V. = perception of light in the temporal field only; the external appearances were unchanged, but there was slight tenderness on pressing the globes backwards. The pupils were equal, reacting to light and convergence. Wernicke's hemianopic reflex was easily elicited on illuminating the temporal and nasal halves of the left fundus. Ophthalmoscopically, the media were clear, and there was papillœdema in both eyes—right + 3 D., left + 4 D. The arteries were thread-like and the veins very engorged with slight retinal œdema, particularly in the left; there were no hæmorrhages or perivasculitis, and nothing in the fundus to explain the left visual field. The visual fields (Charts I.): White and red were markedly contracted, especially inferiorly in the right eye, and the green showed extreme concentric contraction, but in spite of this there was no central scotoma. In the left eye there was only a small island of vision remaining in the temporal field. As regards the nasal conditions, anteriorly and posteriorly on both sides the middle and inferior turbinates were engorged, especially the left, but pus was only seen upon the middle turbinates posteriorly; both

LEFT 1.



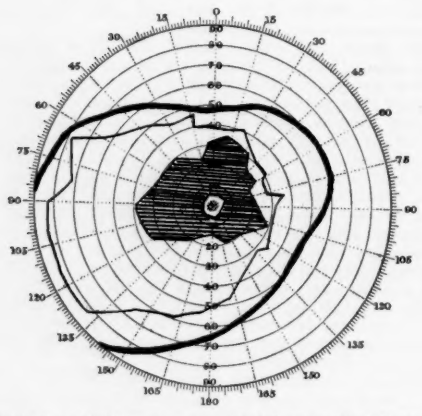
White test object 120 mm. square. Shaded portion blind.

RIGHT 1.



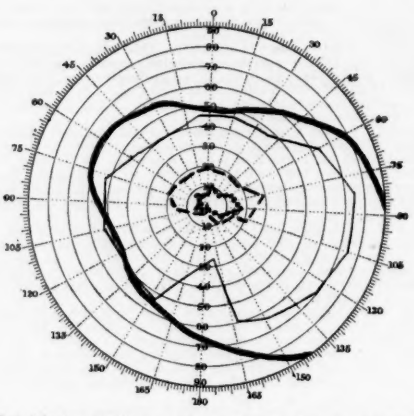
Test objects:—White —— 5·0 mm. square. Red - - - 12·5 mm. square. Green . . . . 12·5 mm. square.

LEFT 2.



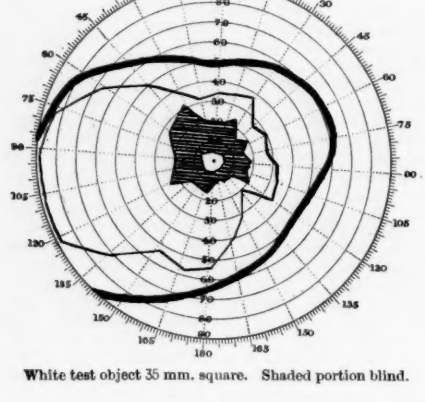
White test object 35 mm. square. Shaded portion blind. Dotted portion relative scotoma 3 mm. green.

RIGHT 2.



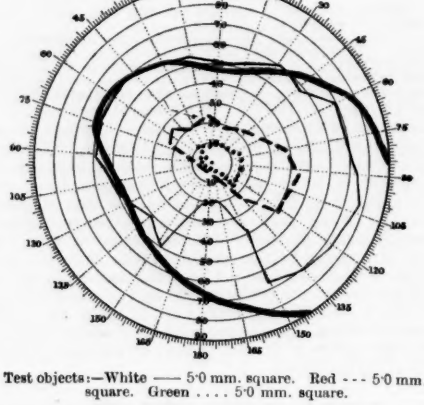
Test objects:—White —— 5·0 mm. square. Red - - 5·0 mm. square. Green . . . . 5·0 mm. square.

LEFT 3.



White test object 35 mm. square. Shaded portion blind.

RIGHT 3.



Test objects:—White —— 5·0 mm. square. Red - - - 5·0 mm. square. Green . . . . 5·0 mm. square.

The Visual Fields. In each a thick continuous line indicates the average normal field of indirect vision, while the field for white is shewn by a thin continuous line, that for red by a broken line, and that for green by a dotted line.

the frontal and antral sinuses transilluminated well. The nervous, vascular, and hæmopoietic systems appeared healthy and there were no signs of plumbism.

No other cause being found, a diagnosis of optic neuritis due to sphenoidal sinusitis was made; the modified Burnham treatment was again carried out for a few days, when pus was seen in the right superior meatus anteriorly. Both middle turbinals were now removed as a preliminary to opening the sphenoidal sinuses; this was followed by a small rise of temperature for about ten days, at the end of which time both sphenoidal sinuses were opened and muco-pus was found; 16 days later, R.V. = 6/6, L.V. = 6/12.

On May 12th, 1910, by rhinoscopy anteriorly the nose appeared healthy, but posteriorly there was still a little pus upon both middle turbinals. Ophthalmoscopy showed that both of the discs were still slightly blurred, but there was no exudate or atrophy. In the intermediate zones of the retinæ there were some grain-like patches of pigment. Small doses of vinum antimoniale and potassium iodide were now given. On the 27th R V. = 6/5, L.V. = 6/9·3. The retinal haze had cleared in each eye. The visual fields (Charts 2) showed very marked improvement in the right eye, particularly in the inferior quadrants. There was a typical complete annular scotoma in the left, and in the small area of central vision a relative scotoma for green. On June 27th the patient stated that she saw better and had had no recurrence of headache. The ocular and nasal condition was unchanged. The visual fields (Charts 3) showed that the central scotoma had disappeared in the left, but the fields in both eyes, although slightly more extensive, retained the same characters.

The diagnosis of this case was mainly arrived at by exclusion. The possibility that at once suggested itself was an intracranial new growth—intense headache, bilateral choked disc, and failing vision; but the absence of any nervous symptoms negatived a cerebral origin. Leukæmia, simple anæmia, nephritis, plumbism, syphilis, &c., were readily excluded. We have not infrequently seen double optic neuritis resulting from accessory sinus disease, and in spite of this patient's absolute denial of any nasal discharge objective signs of sphenoidal sinusitis were looked for and found. The history of sudden blindness with frontal headache in a previously healthy person and the remittent character of the symptoms is very suggestive of accessory sinus affection.

Optic neuritis is not infrequently observed in sinusitis, but choked disc, especially in so marked a degree, is uncommon. Risley [1] reports a case of unilateral choked disc set up by ethmoiditis in a boy of 11, and Fish [2] records two cases which were probably choked disc, one bilateral and one unilateral. These cases are of interest, in view of the present-day tendency to open the skull on account of papilloedema, which on more careful investigation may prove other than cerebral in origin; and Fish states that one of his patients with bilateral optic neuritis, which he believed due to sinus disease, was trephined, and optic atrophy resulted.

It is probable that closed empyemata, of which this case is an example, are a more potent factor in the causation of optic neuritis than the mere intensity of the sinus inflammation, for Jessop,[3] Onodi,[4] and others have recorded cases where the sphenoid bone had necrosed and separated without any neuritis resulting.

The visual fields of this patient are of interest because of the unusual cause of the ring scotoma and the absence of any central defect at the present time, together with the marked recovery. According to Wilbrand [5] ring scotomata occur in the intermediate zone—i.e., between the circles of the fifteenth and forty-fifth degrees arising from the coalescence of insular defects in this area, which may spread to the periphery. He also states that the temporal portion of the field is the last to be destroyed in cases of neuritis. All these points are well illustrated in this patient.

Perlia, quoted by Wilbrand, collected 21 cases of ring scotomata, of which 13 were due to syphilitic choroido-retinitis, 7 to retinitis pigmentosa, and 1 with no ophthalmoscope diagnosis. Fuchs [6] mentions hysteria, and Uhthoff, quoted by Wilbrand, multiple sclerosis, as other causes.

Retinitis pigmentosa has undoubtedly to be considered in this case, because there are spots of retinal pigment in the intermediate zone, but other than this there are none of the classical signs, and with the concurrent progressive improvement of the visual fields and ophthalmoscopic appearances there can be no doubt that the papilloedema has in some way been the cause.

The prognosis in cases of severe optic neuritis, due to accessory sinus disease, when recognised and treated is very favourable, for although the duration may have been very long, and vision seriously impaired or abrogated, yet the majority, it would seem, show almost complete recovery.

The great depletion of body fluids by the profuse diaphoresis produced by the modified Burnham treatment [7] relieved the congestion of the mucosa around the ostium and allowed the pus to escape, with rapid improvement in vision, which, however, was not permanent until the sinuses were treated surgically. At the present time the visual acuity and fields have improved considerably, and the central scotoma has disappeared, with the exhibition of small doses of antimonial wine and potassium iodide.

[1] S. D Risley: Transactions of the American Ophthalmologic Society, 1900.
[2] H. M. Fish: Journal of Laryngology, Rhinology, and Otology, 1907.
[3] Jessop: Transactions of the Ophthalmological Society, 1904.
[4] Onodi: Accessory Sinuses and Optic Nerve, 1910.
[5] Wilbrand: Perimetry in Norris and Oliver's System of Ophthalmology.

THE IMMEDIATE MICROSCOPIC DIAGNOSIS OF TUMOURS AT THE TIME OF OPERATION.

BY ERNEST H. SHAW, M.R.C.S. ENG., L.R.C.P. LOND.,
PATHOLOGIST TO THE GREAT NORTHERN CENTRAL HOSPITAL.

IN an address to the Hampstead Division of the British Medical Association in 1906 Mr. C. B. Lockwood drew attention to the value of an immediate microscopic examination of tumours and diseased tissues at operations. He quoted particulars of a number of cases in support of the practice. It was my privilege to give a demonstration of the method at the meeting. Since that date further experience in a large number of cases has confirmed and strengthened my belief in the great value of the procedure.

My reasons for bringing forward the present communication are: (1) To make the practice more widely known; (2) to remove certain erroneous ideas held by some who have heard of the process, but who are not familiar with its application or technique; (3) to point out certain advantages which this procedure has over the older methods; (4) to give particulars of the method with slight modification; and (5) to report particulars of cases which illustrate the value of an immediate microscopic examination.

The method I follow can be explained in a few words and is as follows:—As soon as the patient has been anæsthetised and the surgeon has explored the region affected, a piece of the tumour is given to the pathologist, who at once freezes it and cuts sections. The section is mounted, stained, and examined under the microscope. A diagnosis is made and the surgeon is informed as to the nature of the tumour. The time occupied by the process is usually about five minutes, sometimes less. A remark which has often been made to me by those unacquainted with the details of the method is, "It takes about a quarter of an hour, doesn't it?" Such a delay in the course of an operation would be very tiresome and even a serious matter. But even if a surgeon had to wait a few minutes longer than usual, surely the results in many cases would justify such a delay. Take such an operation as removal of the breast, pectoral muscles, and axillary glands; or amputation of an arm or leg for new growth, the diagnosis of malignant disease must always be made with certainty to justify such operations. I do not think a surgeon would like to do the former operation for a case of simple mastitis, yet the diagnosis is often impossible without the aid of the microscope. Again, a limb has been amputated for a supposed sarcoma which afterwards proved to be an inflammatory swelling. I have seen one such case and know of two others. The fact that these mistakes have been made by surgeons of proved skill and ability shows the great difficulty, and in many cases impossibility, of making a correct diagnosis without the aid of the microscope.

[6] Fuchs: Text-book of Ophthalmology, 1908.
[7] C. G. R. Wood, Brit. Med. Jour., vol. ii., 1909, p. 202.

There are many cases in which the diagnosis of malignancy of a tumour can be made at once by naked-eye inspection—such as an ulcerating or fungating carcinoma of the breast or tongue. Others in which the same diagnosis can be arrived at directly an incision is made into the growth. Lastly, there is a group of cases in which an accurate knowledge of the malignant or innocent nature is not possible without a microscopic view of the section. The last group is the one in which a rapidly prepared section is of the greatest value.

The older method of procedure in such cases was to cut a piece out of the tumour or ulcer and have a section prepared later. The patient had to wait in suspense for some days, and then, in the event of an adverse verdict from the pathologist, had to undergo a second operation. By Mr. Lockwood's method this is not now necessary. I am referring more particularly to tumours in the breast and other regions where it is necessary to give the patient an anæsthetic in order to explore. When a piece of tissue can be removed without an anæsthetic—i.e., from the tongue, lip, cervix uteri—the delay is not so serious. But even in these cases a fresh section is often advisable. With some there is an impression that the section obtained in this way in so short a time cannot be properly interpreted. This is quite erroneous. Fresh sections can be obtained which show the structure of tumours and tissues quite as plainly as those which are prepared by the slower and more elaborate "paraffin" method. Of course, a certain amount of practice in cutting the frozen sections and experience in interpreting them is necessary.

As a rule, when one has to pause considerably before making a diagnosis from a frozen section the same difficulty arises later when examining a paraffin section of the same tumour. The difficulty in such an instance is not due to the quality of the section but to the nature of the tumour. Cases in which this happens are, however, rare.

Let me now give a few particulars of some of the cases in which this method has proved of value to the surgeon. My first case, undertaken at Yeovil in 1899 for Mr. Lockwood, will serve as a good example. A tumour was present in the breast of a lady; its physical characteristics were those common to a mass of carcinoma or chronic mastitis. It was explored and a piece removed for microscopic examination. This proved to be carcinoma. Fortified by this knowledge the surgeon was then able to proceed with the formidable operation of amputation of the breast with removal of the pectoral muscles and axillary glands, satisfied in his own mind that he was doing the correct operation for his patient.

The following case illustrates in a striking manner the difficulty which sometimes arises in trusting to clinical signs for diagnosing malignant disease. The operation was being performed on the larynx by an eminent surgeon and my share in it was that of an assistant. The thyroid cartilage was split and the interior of the larynx exposed. A large flat ulcer was found at the upper part which extended up on to the side wall of the pharynx. One of two other specialists who were interested onlookers expressed doubt about the malignant character of the ulcer. As the operation contemplated was that of complete extirpation of the larynx, it was thought advisable not to proceed further until the question of malignancy was settled absolutely. A piece of the ulcerated growth was therefore removed for subsequent microscopic examination and the whole wound sewn up. The growth proved to be malignant, and a week later the whole of the larynx with a part of the pharyngeal wall was removed. This case made a great impression on my mind, because I felt that if I had had my cutting appliances and microscope with me a section could have been prepared and the question of malignancy settled at once. The patient would have been saved the suspense of a week's delay and the second operation.

Later another case of laryngeal tumour occurred in which I attended in my capacity as pathologist. A swelling was exposed in the upper part of the larynx. The surgeon felt strongly that it was malignant, but there was just the possibility that it might be tuberculous in nature. A piece of the growth was removed through the thyrotomy wound and in a few minutes a microscopic section revealed a carcinomatous structure. The whole of the larynx was at once removed.

A third example of a laryngeal case may be given, in which it was desirable to modify the extent of a contemplated operation. An epithelioma was present on one side of the larynx and a suspicious swelling on the opposite side. Was the latter also malignant? If it were, the surgeon would remove the whole larynx. A section proved it to be inflammatory tissue only, and so he performed a smaller operation and removed one side only.

One is greatly tempted to go on multiplying instances in which the microscope has proved of service to the surgeon. I will content myself, however, by giving only one more laryngeal case. An epithelioma occupied part of the interior of the larynx of an old gentleman. One of the arytenoid folds was swollen; was this swelling due to the presence of new growth in the fold or was it due to inflammation only? If it were the latter, local removal of the growth only was proposed; if it were new growth, then complete laryngectomy was indicated. The operation was commenced, and before opening the larynx some small, thickened, irregular nodules of tissue were discovered outside the thyroid cartilage. The tissue looked like thyroid gland to the naked eye. A section revealed squamous-celled carcinoma. The disease had, therefore, extended much farther than had been anticipated, and it was decided not to remove the larynx. Tracheotomy was performed and the wound sewn up. The presence of carcinomatous growth in the tissues outside the larynx in this case was proved and indicated that complete removal of the whole area of disease could not be attempted with any degree of success.

From amongst my cases of suspicious swellings and ulcers of the mouth is the following:—

An irregular ulcer was present in the gum, covering the lower jaw of an elderly gentleman. It was fixed to the molar region and floor of the mouth. The edges were hard and nodular. These appearances suggested that the lesion was an epithelioma. A piece was removed which proved to be simple inflammatory tissue. This case serves to illustrate several important points. When a patient is under the influence of an anæsthetic a large piece, or several pieces, of tissue can be removed for microscopic examination. A large piece is more likely to show the true nature of a diseased structure than a small piece. On the other hand, small pieces from ulcers in the mouth sometimes show only inflammatory tissue superficial or adjacent to the malignant tumour. This point should be remembered by those who "snip" or "peel" off a small scrap of tissue from the edge of an ulcer and then ask for a diagnosis. A pathologist may justly report on such a specimen as innocent in nature, although, as a matter of fact, the tumour might be carcinoma. This was illustrated by a case at the Metropolitan Hospital. An elderly man had a large and deep ulcer at the side of the tongue, affecting also the floor of the mouth. The edges of the ulcer were firm, swollen, and irregular, and a yellow mass of necrotic tissue, like "wash-leather," covered part of its base. The mouth could not be opened very far. Enlarged glands were present in the neck. With much difficulty a piece of one of the nodular masses at the edge was removed. A paraffin section revealed much inflammatory tissue and two small collections of epithelial-like cells at the deepest part. By the time the sections were prepared the condition of the man's tongue had much improved under antiseptic treatment by mouth washes and internal administration of potassium iodide, and Wassermann's test for syphilis was positive. The general appearance of the ulcer and the size of the glands were, however, so suspicious that it was thought advisable to obtain a larger piece of tissue for microscopic examination. Under a general anæsthetic this was done and one of the glands also removed. Both sections proved to be squamous-celled carcinoma.

Turning to another region of the body, the breast, and especially that of the female. This is the organ which offers more surprises to the surgeon than any other. A large number of cases come under observation with a "tumour" in the breast. Some cases are fairly straightforward, and a provisional diagnosis can be made clinically without much difficulty. On the other hand, in many of them it is very difficult for one to recognise their true nature. A tumour may be found in the breast which feels quite solid and hard when examined through the skin, but when it is exposed at the operation it turns out to be a cyst filled with fluid at a very high tension. Again, a tumour may feel soft or a sense of fluctuation is obtained. It may nevertheless prove to be a soft fibroma, carcinoma, or sarcoma. Then there is a class of case in which a hard mass is felt in the breast without any obvious change in the skin or nipple. The tumour is not attached to the deeper tissues and moves freely in all directions. Glands may or may not be felt in the axilla. It

is impossible to say from these signs whether the tumour is a mass of chronically inflamed breast tissue or a carcinoma. On exploring the mass its true nature is in many instances at once apparent to the experienced observer's eye, but there are many cases in which a definite diagnosis cannot be made in this manner even at this stage of the operation. These are the cases in which a microscopic section is of the greatest value. The following case is instructive to illustrate this point. A large tumour was felt in the breast of a lady. Its physical character, as felt through the skin, would serve for those of a carcinomatous mass or a chronic mastitis. The mass was removed by Mr. W. McAdam Eccles, and an incision made into it. The structure appeared to be that of a chronically inflamed breast. A microscopic section revealed, however, the presence of carcinoma, together with much inflammation in the surrounding breast tissue. Examples of the above are frequently met with.

Cysts of the breast are notoriously hard to diagnose even by the most experienced clinicians. In many a case have I stood by watching a surgeon while he made an incision into a tumour of the breast, thinking he has a solid mass to deal with. His knife suddenly penetrates a cyst wall and out spurts a quantity of clear or dark coloured fluid. These cysts usually have a smooth lining and are surrounded by inflamed breast tissue. Sometimes, however, when a microscopic section is made through the latter, early carcinoma is discovered. I have seen this in a number of cases, and therefore make it a rule always to examine the tissue about a cyst thoroughly.

In a case operated upon by Mr. Lockwood a small smooth-walled cyst was removed from a breast. At one part of the wall a small patch of blood-stained tissue was discovered. A microscopic section of this tissue proved it to be carcinoma; a complete operation was then performed. The naked-eye appearances of this specimen suggested a hæmatoma into the tissue about the cyst wall, but the microscope disproved this.

Another type of cyst is not unfrequently met with; in this variety a growth is present in one part of the wall of the cyst and projects into its cavity. The cyst also contains blood-stained fluid. A microscopic section will sometimes reveal well-marked carcinoma invading the tissue outside the cyst, and at others a papillomatous growth confined to the cyst wall. It is an important point one has to settle in a case like this, because, in the first instance, where a carcinoma has developed, it is necessary in the interest of the patient that a complete operation should be performed, whereas in the second case amputation of the breast only is necessary. I have been confronted with the above problem on four occasions during the past six months.

One often meets with a tumour of the breast which appears to be composed of inflamed gland tissue on naked-eye inspection of its cut surface. A microscopic section in many cases confirms this diagnosis, and the surgeon is satisfied by local removal of the mass. Sometimes tiny growths are seen in cyst-like spaces in the midst of an indurated patch of mammary gland; they may be partly lifted out of the cysts with the point of a knife, and then are found to be attached to the wall by a small pedicle. A microscopic section will show that these growths are epithelial in nature and that the epithelium of the acini and ducts in the neighbourhood is actively proliferating. If the epithelium and epithelial growths are confined within the dilated acini and ducts one may assume that the condition is as yet innocent in character. This can be proved by the microscope. In Mr. Eccles's case, quoted above, carcinoma had developed. Although these cases are apparently quite innocent in nature it is to be remembered that, firstly, carcinoma may ensue in the mass, and, secondly, other and smaller patches of a similar nature may be present in the same breast. These patches are too small to be felt by examination clinically, and are only found on cutting through the breast after removal. I have frequently seen breasts illustrating this condition. The following plan of treatment seems to me a reasonable and safe one to follows:—1. For a single mass of indurated and inflamed breast tissue, local removal of the tumour. 2. A mass of inflamed breast, with much proliferation of the epithelium and the presence of polypoid or papillomatous growths, removal of the whole breast. 3. Inflammatory breast tissues and commencing carcinoma, complete removal of breast and axillary glands, &c. This line of treatment can be planned and carried out by the surgeon when he has the diagnosis put on a safe basis by an immediate microscopic examination of the tumour. I do not think it will serve any useful purpose to merely enumerate the numerous cases which have helped me to arrive at the above opinion.

Exploration of a breast tumour by means of a trocar and cannula has been practised by some as a means of diagnosis. From what has been said above it will be granted that even if a cyst be present and fluid obtained through the cannula, the presence of carcinoma in the cyst wall cannot be excluded. On the other hand, if no fluid is obtained and the tumour is thus assumed to be solid, the distinction between carcinoma and chronic inflammation only cannot be made. I have seen this method used once and consider it a useless one.

Most surgeons and pathologists would say that it is easy to diagnose a hard carcinoma directly it is cut into and a view of its interior obtained. This is true in many instances, but occasionally it is not so easy. I have seen a tumour which presented all the naked-eye appearances of what is called a "scirrhus" proved to be on microscopic examination a syphilitic inflammatory mass. Before seeing this specimen I was conceited enough to think that I could always diagnose a "typical scirrhus" on sight.

An immediate microscopic diagnosis is of great service in cases of uterine carcinoma. A small piece of tissue can be removed from the cervix without an anæsthetic and examined at leisure, but it is different with lesions in the cervical canal and body of the uterus. Sections can be prepared at once of the small pieces removed with a curette from the wall of the cervix and body while the patient is under the influence of the anæsthetic. I was able to demonstrate carcinoma in a case operated upon by Dr. W. S. A. Griffith last year. The pieces of growth were obtained from the body of the uterus and proved to be columnar-celled carcinoma. Hysterectomy was then proceeded with at once. In most cases which one examines the uterine scrapings prove to be simple in nature and no further operation is necessary. But now and then malignant disease is disclosed by microscopic sections. In a case also under Dr. Griffith a flat ulcer was present just by the external os. A piece of the cervix was cut out and a microscopic section revealed carcinoma, which was infiltrating the muscle. It did not project into the cervical canal or vagina and its true nature could not be proved without the microscope.

In a case operated upon at the Great Northern Central Hospital Mr. E. C. Stabb found a general thickening of the cæcum and lower part of the ileum. The swelling looked very much like a new growth, and he thought it would be necessary to remove it; but at his request I there and then cut a section and was able to assure him that the condition was inflammatory. In this case the microscopic examination saved the patient from the risk of an unnecessary enterectomy, which it seemed advisable to do on the ordinary naked-eye evidence of the condition, which was very suggestive of new growth.

It is sometimes very difficult to determine the nature of a thickened gall-bladder, and it is extremely useful to get a definite microscopic diagnosis. An inflamed gall-bladder may be left, or at most removed locally, but a malignant organ requires a wide and complete removal if it is possible to do so.

Further, it is difficult in some cases to make a correct diagnosis of swellings and ulcers affecting the limbs. A gentleman had a warty growth on one of his fingers, and it was proposed to amputate the finger if the growth should turn out to be malignant. A section proved it to be innocent, and therefore the local removal performed was sufficient and the wound sewn up. I have since had a similar case in which the swelling proved to be inflammatory and not sarcomatous, as was feared. In another case a growth in the sole of the foot proved on microscopic examination to be a sarcoma; this justified amputation of the foot.

Sarcomata of the limbs can be demonstrated by sections made at the time of exploration, and I think this should always be done before removing an arm or a leg. Cases of "quiet" necrosis of a piece of bone with inflammatory thickening around occur occasionally and closely simulate new growth.

The following case illustrates the value of coöperation between the surgeon and pathologist. A swelling of the lower end of the femur was diagnosed by means of an X-ray photograph as a new growth. It appeared to be confined within the shaft of the bone—i.e., an endosteal sarcoma. If

the tumour should prove to be a sarcoma, and of the myeloid or "giant" celled type, as is usually the case in the endosteal form of growth, amputation through the thigh was contemplated. If, on the other hand, it should prove to be an example of the more malignant type of sarcoma—i.e., round- or mixed-celled sarcoma—then it was thought better to amputate the limb at the hip-joint. A piece of the soft tissue within the bone was removed and a microscopic section prepared. The section showed the structure of a mixed round- and spindle-celled sarcoma. The more severe operation was then performed.

Method of Cutting Frozen Sections of Fresh Tissues.

The method may be divided into two parts.

1. Arranging the apparatus to be used. The microtome must be fixed on a firm table and all the instruments arranged in a convenient manner.[2] A mental survey of the freezing, cutting, mounting, and staining of a section is then made, in order to make sure that everything is present and in its proper place. This ensures that no time will be wasted when once the process is begun.

2. Preparation of the microscopic section.

(*a*) The selected piece of tissue received from the surgeon is placed on the brass disc of the freezing microtome, and is surrounded by gum solution.

(*b*) The tissue and gum are frozen and sections made by a razor on a carrier.

(*c*) The sections are transferred to a dish of cold water, and after separating them with a glass rod a suitable section is lifted out.

(*d*) It is dipped for a moment into pure methylated spirit, and

(*e*) Then placed into another larger dish of cold water; the currents set up by the spirit in the water cause the section to spread out flat.

(*f*) A glass slide is dipped in the water under the section, and the latter is lifted out as the slide is slowly drawn up out of the water again.

(*g*) The water is drained off the slide and a few drops of stain (Löffler's methylene blue) are allowed to fall directly on to the section.

(*h*) A thin cover-glass is placed on the stain and section after several seconds; it is lightly pressed down, so as to drive out excess of stain; this is then blotted off, and the specimen is ready for examination under the microscope.

Parkhurst-road, Holloway, N.

[2] During the past two years I have been using the ethyl chloride spray for freezing tissues; it answers admirably and also has advantages over the ether spray. The ether spray tube occasionally gets blocked or the bellows split. If this happens at an operation case the pathologist's lot is not an enviable one. An accident of this nature caused me to turn to the ethyl chloride tube. Williams's ether freezing microtome is large and heavy to carry about in one's bag, but by using the ethyl chloride spray the circular plate of the machine only is required. The spray is directed from above on to the specimen, and not from below, as is done with the ether spray. The plate is, therefore, placed directly on to the work-table and no clamp is required to steady it.

PNEUMONIA:

AN INQUIRY INTO SOME OF THE MECHANICAL CONDITIONS WHICH MAY OCCUR IN THE CHEST IN ADULTS SUFFERING FROM AN INFECTION WITH THE PNEUMOCOCCUS OF FRAENKEL, AND OBSERVATIONS ON TREATMENT WITH SPECIAL REFERENCE TO THE USE OF MORPHINE; AND ON SOME SURGICAL CONDITIONS.

BY W. E. McKECHNIE, M.B., CH.B. EDIN.,
CAPTAIN I.M.S.; CIVIL SURGEON OF ETAWAH, INDIA.

IN typical cases of severe pneumonia the patient begins with a high temperature and much restlessness, and usually an acute pain somewhere in the chest or upper abdomen. Sleep is prevented and the respiratory amplitude is much diminished as a result of the painful reflex set up by the lesion in the lung. Even when the lesion does not excite a consciousness of pain in the patient due to radiation of the stimulus to the higher perceptive centres, nevertheless the lower reflex causes a diminution of the respiratory amplitude accompanied by an increased rate of respiration. On the one hand, there is an inhibition tending to keep the parts attacked by the disease at rest, and, on the other hand, there is an excitation due to the imperious necessity for breathing. The respiratory centre is fully active, and as a result of the warring stimuli it receives we get diminished amplitude and increased frequency of respiration. Valuable evidence of the stimulating reflex and of the functional activity of the respiratory centre is afforded by the working of the alæ nasi, which, in conjunction with a high temperature and acute onset, is almost pathognomonic of pneumonia. The shortening of the respiratory amplitude is one of the most striking features of pneumonia and one deserving careful study. Let us consider what some of the consequences are.

In the first place there is an interference with the suctional action by which the expanding cage of the chest, acting through the elasticity of the lungs, reduces the pressure in the big veins leading to the right auricle to less than atmospheric pressure. This action it is which enables the venous blood to return to the heart with sufficient velocity to maintain a free and easy circulation. Its power is well known to surgeons who have had the misfortune to open a big vein near the chest and to keep it open. The air outside, being under higher pressure, rushes into the heart. This action converts the relatively feeble head of pressure due to the almost expended driving power of the left ventricle, such as obtains, for example, in the portal veins of the liver, into a relatively high head of pressure with its consequent rapid flow. It is not too much to say that the excursions of the chest wall and diaphragm furnish the most important element in the return of blood to the right auricle. When these excursions are diminished in amplitude there must be a corresponding diminution of the rate of flow of venous blood to the right auricle, for which an increased frequency of respiration will not entirely compensate.

Organisms, like machines, are subject to the physical laws, and any given mechanism will work most efficiently at a certain speed and amplitude. A steamer can be built to give maximum economy of coal per mile run at only one speed; above and below that speed more coal is required per mile run. A given pump at given power will deliver a maximum quantity of water at one amplitude of stroke and one rate of speed; less water will be delivered if the stroke be diminished and the speed increased, or *vice versâ*. It is true that living organisms have compensating mechanisms of wonderful efficiency or no one would ever live through an attack of pneumonia. But there is little doubt that there is loss of efficiency at other than normal rates, and compensation tends to be incomplete, and especially when the demands are sudden or prolonged.

In the second place, the diminution in the respiratory amplitude entails a shortening of the to and fro excursion of the column of air in the upper air passages, a diminution of the respiratory tide by means of which the exchange of gases between the air in the lungs and outside takes place. The rate of entrance of oxygen and of exit of carbon dioxide is diminished. Again, in this case also increased quickness of respiration does not entirely compensate for the want of depth in respiration. Anyone can test the matter for himself on his own person. Let him try to breathe as quickly as he possibly can, but let him also fix his chest and make the respirations extremely shallow. He will find very soon that he feels little better than if he were holding his breath altogether, and he will suffocate unless he takes a deep breath, which he will soon be forced to do. It is this deep breath which allows the pure air from outside to enter the upper air passages sufficiently far to ventilate the deeper working parts of the lungs so as to permit a sufficiently rapid exit of the accumulated molecules of carbon dioxide.[1]

[1] Haldane and Priestley have shown that in a normal individual if the respirations be increased in frequency they decrease in depth, and *vice versâ*, so as to maintain a normal percentage of carbon dioxide in the alveolar air—that is, provided the respirations are not forced; the compensation in this case for frequencies of respiration not greatly exceeding the mean is complete. But it appears not to be complete in pneumonia, as is evidenced by the working of the alæ nasi which indicates an excessive stimulation of the respiratory centre, which is most probably caused by excess of carbon dioxide in the circulating blood. On the other hand, Speck has given the following results:—

Type of breathing.	Volume of expired air per minute.	Percentage of oxygen.	Percentage of carbon dioxide.
Normal	7,527 c.c.	16·29	4·21
Very shallow	5,833 ,,	15·50	4·63
Very deep	17,647 ,,	18·29	3·17

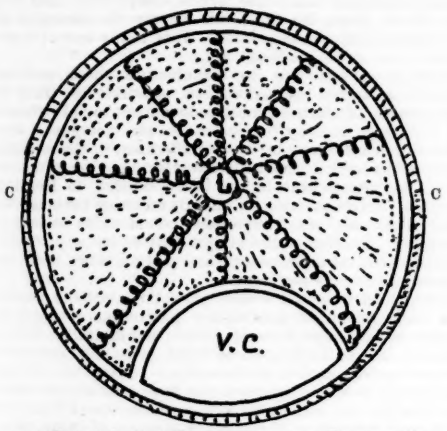
This shows how the percentage of carbon dioxide increases in the alveolar air when the respiration is shallow, the amounts of carbon

It thus appears that the short, quick, and shallow breathing seen so frequently even at the very outset of an attack of pneumonia favours an accumulation of carbon dioxide in the blood in two separate ways: (1) by diminishing the pumping action of the chest the venous blood stream is slowed so that less blood passes through the lungs in a given time; and (2) by preventing efficient exit of carbon dioxide from the alveolar air.

This accumulation of carbon dioxide in the blood has itself a further deleterious effect on the rate of circulation through the lungs. If a dog's peptone plasma (that is a plasma which does not coagulate spontaneously like ordinary blood *in vitro* but otherwise appears to be identical with it) has a stream of carbon dioxide passed through it, it will first become more viscous and then coagulate. It appears from recent work that an acid like carbon dioxide, introduced into a colloidal fluid, has the power of reducing the number of free negative charges in the fluid, which, if the colloidal particles are themselves negatively charged, help to keep the colloidal particles discrete and apart, and the colloidal liquid therefore in a liquid state. When the free negative charges diminish in number from being neutralised by the positive ions of the carbon dioxide or acid radicle, the colloidal particles tend to aggregate and the colloidal liquid becomes gradually more viscous, and finally may coagulate and become solid. The venous blood then, as a negative colloid, when it becomes more highly charged with carbon dioxide, becomes more and more viscous and flows less readily, thus aggravating the condition of slow circulation arising from the deficient pumping action of the chest. Thus a vicious circle is established and we can now readily understand how the thick and tarry dark venous blood which may be obtained from a patient's arm even in the early stages of an attack of pneumonia is produced, and the desirability of a deepening of the respiration becomes apparent.

These effects can be noted before any extensive consolidation of the lung has taken place, and when occurring thus early seem to be due to the inhibitory nervous reflex initiated at the site of the visceral lesion in the lung, causing defective respiratory action. But consolidation of the lung, if at all extensive, aggravates the circulatory difficulties very seriously. Besides the more or less obvious ways in which it may act, it has an important effect which is worth discussing. When the lung is normal and the volume of the chest increases on inspiration, the pressure of the atmospheric air expands the lungs against the tension of its elastic fibres and stretches them. These fibres, for the purposes of a diagram (see Fig. 1), may be imagined as radiating outwards from the

FIG. 1.



C C, Cage of chest. L, Centre of lung. V C, Venous cavity.

centre of the lung to the periphery, and as always tending to pull the periphery towards the centre. Fig. 1 shows the chest containing: (1) the lung with its elastic fibres always tending to contract its volume; and (2) a cavity representing the right auricle and the large veins of the chest which open into it, and which for short may be called the venous cavity. Now consider what would happen in different states of the lung when the chest expands and contracts.

First case.—If the lung cannot expand but remains fixed, then when the chest expands the venous cavity alone will expand and the pressure inside it will be less than atmospheric; when the expansion of inspiration is followed by the contraction of expiration the venous cavity will be squeezed and the pressure in it will rise to the atmospheric. Thus the venous cavity will be subjected to sudden alterations of pressure corresponding in frequency to that of the respiration, and there will be a tendency to water-hammer in the veins.

Second case.—If the lungs were perfectly free to expand and offered no resistance to expansion—that is, if there were no elastic fibres and no tendency for the lung to contract from its periphery to its centre, then when the cage of the chest expanded the air from outside would rush in and fill the increasing cavity without resistance, and the pressure upon the venous cavity would remain constant at that of the atmosphere. During inspiration and expiration the pressure on the venous cavity would remain the same, saving for the very slight difference in pressure due to the friction of the air in its course to and from the lungs. There would be no aspiratory effect on the venous cavity in this case, in marked contrast to the aspirating effect in Case 1, which latter would be equal to the total muscular effect of the muscles causing expansion of the chest. Thus in the first case there would be sudden and violent jerky aspirations of the venous cavity; in the second there would be no action at all.

Third case.—Consider the case of the normal elastic lung. When the cage of the chest expands, the elastic fibres of the lung tend to cause the lung to remain contracted and thus allow an aspirating effect on the venous cavity as in the first case. But there will be no jerk, because the atmospheric pressure at once overcomes the contractile force of the lungs and expands them and stretches them so that the two surfaces of the pleura are always in contact. All the time the lung is expanding it is doing so against the force of its elastic fibres so that there is a sub-atmospheric pressure on the venous cavity exactly corresponding to the amount of pressure the atmosphere has to exert to overcome the resistance of the elastic fibres. This aspirating effect will not be so great as at the beginning of the inspiratory effort in the hypothetical first case, but it will be a continuous one because it will last during expiration. In the first case the sub-atmospheric pressure suddenly changed on expiration to full atmospheric. In this, the normal case, the contracting of the chest wall during expiration is accompanied by a contraction of the elastic lung from its periphery to its centre due to the force of its stretched elastic fibres, and this force tends to diminish the volume of the lung with exactly the same intensity as it did during inspiration; this must be so because during both inspiration and expiration the pressure of air within the lung is that of the atmosphere if we neglect the very slight differences due to the friction of the flowing air. Wherever the surface of the lung is in contact with the boundary of the venous cavity it is tending to shrink away from it with the force due to the stretching of its elastic fibres and thus to cause a vacuum.

As an illustration, take a glass jar (Fig. 2) the mouth of which is covered by a thin sheet of indiarubber; if now

FIG. 2.

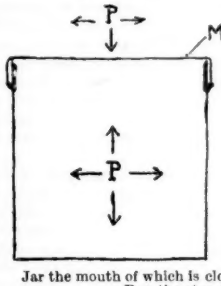
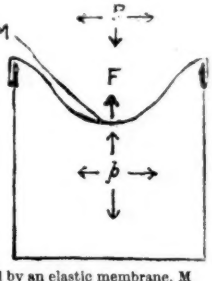


FIG. 3.



Jar the mouth of which is closed by an elastic membrane, M
P = the atmospheric pressure.

some air be aspirated from its interior, or, what comes to the same thing, if its volume be increased, there would be a

dioxide expired per minute being (calculated from the table): 317 c.c. for normal breathing, 270 c.c. for shallow breathing, and 559 c.c. for deep breathing.

lessened pressure or partial vacuum in its interior, and the air pressure of the atmosphere will force the elastic membrane down into the bottle so as to reduce its volume content and increase the interior pressure, and we will get the appearance of Fig. 3. Now the air pressure inside 3 will not be exactly equal to the atmospheric, but will be less than this by the amount of pressure necessary to stretch the elastic membrane to its altered shape. If P be the atmospheric pressure, F the force with which the elastic membrane tends to retract, and p the pressure inside the bottle, then $P = F + p$, that is, $p = P - F$; or in other words, the pressure inside the bottle is less than the atmospheric by the amount of force necessary to stretch the elastic fibres. If now we replace in our imagination the bottle by the chest and venous cavities and the membrane by the lungs the action of the elasticity of the lungs becomes clear.

We see that with a normal elastic lung there is a *continuous* aspirating effect on the venous cavity within the chest, the elastic lung performing the function of a regulator, reducing the force of aspiration during inspiration and giving it out again during expiration, so as to maintain a continuous aspiratory effect upon the venous cavity. This is a very beautiful mechanism. There are now no abrupt and too violent changes of pressure in the venous cavity. There is now no tendency to water-hammer. The flow of blood is all the time encouraged towards the heart. The function of the right auricle and contractile sinus is now easily seen; when full they have merely to contract against the uniform and easy negative pressure which is measured by the lungs' elasticity and empty themselves, and then allow the oncoming blood to fill them again whilst they are being expanded through the negative pressure.

Having considered these matters, it is now seen what effect œdema or consolidation of the lung must have on this mechanism. As the lung becomes consolidated or œdematous it loses its powers of expansion and contraction, and thus the mechanical elasticity of its elastic fibres is rendered more or less inoperative. If both lungs were full of fluid or completely consolidated we should have the condition of Case 1. The function of the elastic fibres would be completely suspended. This, of course, never happens, but to whatever extent the lungs are consolidated, and to a less extent in cases of œdema, by so much is the normal mechanism above described interfered with, and the unfavourable condition of Case 1 approached; and I am inclined to think that it is largely by interfering with the elasticity of the lung and its function as a distributor and regulator of the power exerted by the respiratory muscles in helping the venous circulation that consolidation embarrasses the circulation and throws a strain upon the heart.

It may be here remarked that emphysema is a pathological condition giving an approach to Case 2, and I think some of the difficulties the heart meets with in such cases may be explained on the above lines.

I have considered the case of consolidation for the sake of completeness, but in this paper I am more concerned with the conditions which usually obtain in the early stages of the septicæmia due to Fraenkel's pneumococcus. Usually at an early stage there occurs a lesion near the periphery of the lung with involvement of the pleura and a nervous reflex which has for its effect a shortening of the respiratory amplitude of which I have endeavoured to show the consequences. In support of the theory there is some clinical evidence. Thus on several occasions during the first, second, or third day of an attack of acute pneumonia in an adult, when the respirations were quick, short, and shallow, and before any extensive area of consolidation was noticeable, I have bled the patients from the median basilic vein. In each case the blood was abnormally viscid, so much so that it flowed with some difficulty; it clotted almost at once in the basin, more quickly than normal blood; it was very dark in colour.

It would be desirable to make exact experiments in the matter, a thing which I have had no opportunity of doing. I would suggest that syringefuls of venous blood should be taken from the arms of patients in the early stages of pneumonia and quantitative estimations made of the amount of carbon dioxide in the blood and of its correlation with the rate and amplitude of the respiration and the composition of the expired air as regards content of carbon dioxide. At the same time the coagulation time and the viscosity of the venous and arterial blood should be determined. The amount of correlation amongst the observed data would afford a test of the theories.

The chief danger in pneumonia (I am referring always to the acute septicæmia of Fraenkel's pneumococcus in adults) is that the blood may coagulate and form a white thrombus which attaches itself to the tricuspid valve and gradually grows into and blocks up the pulmonary artery. In most fatal cases of pneumonia which I have examined I have found this condition. Unfortunately, in India we do not often get the opportunity of performing a necropsy, and I therefore speak with diffidence; but I believe it is generally held that there is a special danger of ante-mortem clotting in the right heart in pneumonia.

The causes of clotting, whether *in vivo* or *in vitro*, are as yet very imperfectly understood. Practically no advance has been made since Wooldridge died—an unhappy day for pathology. But it may be fairly safely affirmed that retardation of the blood stream, water hammer, and saturation with carbon dioxide are powerful factors in its production, and if by any means we can minimise these evils we will lessen the great danger there is of clot forming in the right side of the heart. We know too little as yet to make it safe to try to affect the blood itself directly by injecting substances into it, though it offers a very promising field for research. But if the slowing of the blood stream from the mechanical causes I have indicated be a fact, then we have, I think, in morphine an agent by means of which, owing to its power of relieving pain and lessening the inhibitory visceral reflex, we can modify the conditions in a direction favourable to the patient during the early stages of the disease.

Having cleared the ground so far it remains to discuss some practical points in the treatment and management of a typical case of acute pneumonia.

The history of the treatment of pneumonia affords a good example of that irrational empiricism in medicine which is beginning to give way before the cold facts of scientific observation and experiment. In a violent and dangerous and distressful disease like pneumonia, often threatening a valuable life in its prime, there is a great temptation put upon the medical men in charge of the case *to do something*. The friends and anxious relatives expect it of him; it is what they pay him for—if they do pay him. Well may it be, then, for himself and his patient if he can practise arts like those of the homœopathist and cloak a masterly inactivity under the guise of a sustained and attentive therapeutic zeal. He knows that Nature is fighting the battle for him. The blood is swarming with pneumococci, and somehow, somewhere, the body is manufacturing those subtle substances—antitoxins, lysins, complement, and what not—which, given the time, will destroy the parasites and their poisons in about a week. This is *the cure:* Nature effects it, never the medical man.

Until he knows how to manufacture these antidotes himself or assist his patient to manufacture them his management of the case must reduce itself to: (1) abstaining from any therapy for which he has not got a clear *rationale* in case it may injuriously affect any of the unknown processes by which the body manufactures its antidotes; (2) putting the patient in the best condition to live long enough to survive the attack; and (3) watching for complications. These are often important and amenable to surgical treatment. To discuss the subject fully under any of these three heads would be wearisome and platitudinous, but a few observations may be pertinent.

Under the first head I wish to protest against the practice of a large school of present-day practitioners who treat pneumonia with large doses of alcohol and digitalis. I have been surprised at the lengths to which some medical men I have known have carried this practice. I have known men who, as soon as they diagnose a case as pneumonia, forthwith prescribe for the patient from 2 to 6 ounces of brandy or whisky and from 20 to 30 minims of tincture of digitalis per diem, and when the case gets worse even increase these amounts. "Make him drunk," one man said. I do not think that there was anything in the worst excesses of the bleeding school which was worse than this. There is no *rationale* in this treatment. These gentlemen, I suppose, *pace* the pharmacologists, regard alcohol and digitalis as "stimulants" of the heart. Even if they were, the heart requires no stimulation; it is perfectly willing and active and does its duty to the utmost of its powers throughout the disease; but

it cannot do the aspirating which is the function of the respiratory muscles and lungs, and it cannot drive blood through the pulmonary artery if the latter becomes blocked by coagulated plasma and leucocytes. It is pitiful to see a man drugging his patient with poisonous doses of so-called heart stimulants when the circulation is stopping because a clot is blocking up the pulmonary artery. There would be more chance of saving his patient by opening the chest and removing the clot. That alcohol hinders the formation of antibodies has often been shown by laboratory experiments; and it has other injurious actions. The work on digitalis goes to show that its value is confined to cases of failure of compensation in the left ventricle, and that otherwise it is a poison.

As regards the second and most important rôle of the physician—to put the patient in the best position to live past the crisis. The body of the patient is being poisoned by the pneumococcus and is trying to manufacture antidotes. It will do so to the best advantage if it has no other intoxications to fight against; of these, that due to carbon dioxide is incidental to the lesion in the lung, but can be minimised. Another intoxication may arise from the alimentary canal. The effects of constipation on the circulation are well known: the circulation tends to be sluggish, the feet and hands to be cold, the lips bluish, and the skin is liable to show a dusky bluish mottling on exposed parts; all this tends to show that intestinal intoxication favours an accumulation of carbon dioxide in the blood. How very important it is then that any such poisoning should be eliminated at the very outset of a case of pneumonia! The freest purging is called for. The alimentary canal should be thoroughly emptied and the mouth well cleansed. During the remainder of the illness no food of any kind should be given. To do so is to poison the patient. Any patient with a high temperature is incapable of proper digestion: there is a stoppage of the flow of saliva and we may be sure that there is a similar stoppage of the flow of the other digestive juices. Cells in a state of cloudy degeneration cannot be expected to perform their functions properly. To put food into the patient is merely to furnish material for the bacterial flora of the alimentary canal to feed upon and to convert into quantities of substances toxic to the patient. One of these is *gas*, which in pneumonia is harmful mechanically, because the more empty the abdomen is the more readily can the breathing be carried on. No professional singer who values his reputation will sing except when fasting. He knows that unless his chest and diaphragm have free play he cannot sing properly, because singing requires a full use of the breathing powers. The heart also is liable to be handicapped if there is pressure on the diaphragm from below. What runner ever won a race on a full stomach?—a case of pneumonia is, so to speak, running all the time.

For the sake, therefore, of giving the utmost scope and freedom to the respiratory and circulatory apparatus during their time of trial we must empty the alimentary canal and keep it empty. Water alone must be given as this is a necessity of life which requires replacement from outside the body, whereas foodstuffs are contained in ample and just proportions in the fat and muscles of the body and are available with the least expenditure of energy.

In normal subjects the ingestion of food has a marked effect on the production and discharge of carbon dioxide. Thus Zuntz and Lehmann, Magnus-Levy, Johansson, and others have shown that the respiratory exchange and output of carbon dioxide reach a minimum in from 12 to 24 hours after the last meal, and remain practically constant at that value till food is again taken. After food is taken the output of carbon dioxide soon rises and in about an hour's time may be from 14 to 97 per cent. higher than it was in the fasting condition, according to the nature of the food. The pneumonia patient is finding the greatest difficulty in eliminating carbon dioxide, so that anything which tends to increase its production in the body must be avoided, and anything which causes its production to be a minimum must be encouraged: of these conditions, sleep and rest are the chief. Thus, E. Smith found that a man discharged the following amounts of carbon dioxide per minute: During sleep, 161 c.c.; walking at two miles per hour, 569 c.c. Thus a man's lungs will have to eliminate about three and a half times less carbon dioxide during the very restful condition of sleep compared with a condition of even gentle exercise. This shows the importance of ensuring rest and, if possible, sleep, which is the completest form of rest.

Rest in bed and abstention from food the physician may ensure. To obtain sleep and diminish restlessness is more difficult, and it is here that, in my opinion, morphine shows itself as a most valuable drug; and, besides this, it has, I think, a direct action whereby it tends to minimise those impediments to the discharge of carbon dioxide from the lungs which I have discussed. I have endeavoured to show that the lesion in the lung, at quite an early stage before consolidation is extensive or advanced, by shortening the amplitude of respiration causes an accumulation of carbon dioxide. There is an inhibition tending to keep the injured lung at rest. But, unfortunately, the lung cannot be allowed to rest; if it rests too much the patient may die. If there be pain, the difficulty in respiration, the restlessness and sleeplessness are aggravated. There is nothing more exhausting than severe visceral pain.

Now it is the most striking action of morphine that it has the power of relieving visceral pain *par excellence*. At the same time that it relieves the visceral pain it tends to remove the inhibitory reflex of which the pain seems to be merely an irradiation to a higher perception centre in the brain. As instances of this are the following.

1. A case of gall-stone in common duct, no gall-bladder, stone removed by operation, subsequent history of rather severe attacks of gall-stone pain. To relieve one of these attacks all that is necessary is an injection of 0·008 gramme of morphine; in three minutes' time the pain begins to disappear, and at the same time there are heard gurglings and squirtings in the abdomen indicating an active peristalsis and movement in the intestines. On auscultation during an attack of pain and before morphine is injected there are no sounds to be heard; all is perfectly still, held in the bonds of inhibition. When the morphine removes the inhibition the normal activity becomes re-established.

2. In acute painful dry pleurisy when the patient can hardly draw breath, as soon as enough morphine is injected to relieve the pain the inhibition is removed, and the patient can draw easy and adequate breaths and get a sleep which was before impossible.

A fact which I have often noted in these painful visceral conditions is that during the pain and before the injection of morphine the lips and complexion are bluish, as if there were an accumulation of carbon dioxide in the blood. After the injection when the pain is relieved the blue or dusky appearance passes away, and may be succeeded by the healthy reddish colour of an active circulation.

It is my practice, therefore, to give morphine in the early stages of pneumonia if there is pain preventing sleep, or if there is much restlessness, or if the amplitude of the respiration appears to be sufficiently diminished to cause an accumulation of carbon dioxide. The diminution in amplitude of respiration is no doubt a protective process which gives rest to the inflamed lung. On the one hand, we have the diseased lung for which rest and repair is the best thing; on the other hand, we have the patient, the owner of the lung, to whom a certain continued respiratory activity is essential. The physician must try to hold a judicious balance between these more or less temporarily conflicting interests, always remembering that he must ease the amount of physiological work the lungs have to do as much as possible, and at the same time enable the patient to live over the crisis.

The first dose of morphine I give is usually 0·008 gramme, and one seldom requires to give more than 0·016 gramme. I invariably give morphine hypodermically; it is the only sound and safe way, as the effect of the dose becomes apparent in a few minutes and there is no danger of unabsorbed doses causing unexpected poisoning.

During the last ten years I must have given morphine to between 200 and 300 adults suffering with acute lobar pneumonia. I have usually given it during the first three days of the attack, most frequently on the evening of the first or second day. Out of all these cases I cannot recollect a single instance in which there appeared to be any harmful effect. On the contrary, the benefits have usually been marked. The breathing becomes easier, the pain is relieved, the circulation improved, and the patient gets some of that rest and sleep which is such an important element in conserving the energy of the patient and in diminishing the

manufacture of carbon dioxide. The use of ice, hot compresses, poultices, &c., may be dispensed with, and the patient need no longer battle with a gigantic poultice on his already overtaxed and overheated chest; morphine relieves the pain and gives sleep far more efficiently.

My experience causes me to doubt the soundness of those warnings against its use which are at the present day indulged in. Ideas of this sort when they get into a text-book or are endorsed by some prominent teachers are apt to take very deep root and to be propagated from text-book to text-book and from mouth to mouth, although they may have very little justification in fact. After my own experience it seems to me probable that the fear of using morphine has been based on some unfortunate results, possibly really unconnected with its exhibition, perhaps due to its employment in an injudicious way, as, for instance, by oral administration, combined with somewhat plausible reasoning as follows: "Here is a respiratory disorder: blood badly aerated: necessity for utmost activity of the respiratory centre: any weakening of this may cause the death of the patient: morphine contra-indicated because it is a respiratory depressant, and therefore dangerous."

The answer to this is that there is no evidence of functional weakening of the respiratory or cardiac centres: rather the contrary. But there is an inhibitory reflex at work in the respiratory centre which shortens the amplitude of respiration. This inhibition can be counteracted to some extent by morphine. Morphine tends to deepen respiration, which is what is wanted in pneumonia, as I have endeavoured to show. It is only in excessive doses that morphine paralyses the respiratory centre. One only observes a paresis of the respiratory and cardiac centres in pneumonia when the patient is dying, not because these centres are being paralysed by the toxins of the disease proper, but because they are being killed by an excess of carbon dioxide and a deficiency of oxygen due to mechanical stoppage of the circulation in the chest.

Regarding the third duty of the physician, to watch for complications, a few remarks may be made. The patient is so ill that when once the diagnosis of lobar pneumonia has been made the physician is disinclined to worry and fatigue him with frequent or searching examinations. Nevertheless, he should closely watch and examine; events of the most serious nature are apt to develop with great rapidity, and they are sometimes amenable to direct surgical treatment; of these may be mentioned:—

1. *Purulent pericarditis.*—This is difficult to diagnose unless careful examinations are made, and it is not a very uncommon complication. I was called once to take over a case of pneumonia from a medical man who was going away. He pointed to the man and said he was dying. And so he was: he was practically unconscious, gasping, pulse a flutter. I noticed his feet were œdematous, and I examined his heart carefully and came to the conclusion that he had developed purulent pericarditis. The aspirator confirmed the diagnosis, so I operated at once. An anæsthetic was not needed as the patient was too moribund to feel. I removed the cartilage of the left fifth rib and it was then quite easy to make a vertical incision in the tense pericardium and to sew its edges to the wound. About ten ounces of thick yellow pus escaped and the furry surface of the heart was easily seen and felt. The patient rapidly improved and was sitting up in bed with a normal temperature a week afterwards. He then went out of my charge, and on the fourteenth day a hospital assistant syringed out the pericardial sac and infected it, for death occurred from stinking pericarditis on the seventeenth day. The case shows well enough that life may be saved by timely recognition and treatment of purulent pericarditis.

2. *Purulent pleurisy* is by no means infrequent. I once had eight cases of pneumonia sent to my hospital on the same day from a regiment on route march. Two of these developed pus in the chest and were saved by operation and a third developed a large abscess in the peri-peritoneal tissue between the umbilicus and the pubes. All the cases recovered. One must always regard pneumonia as a septicæmia and be prepared to discover pus, especially in connexion with the great serous surfaces of the viscera, the pericardium, the pleura, and the peritoneum. These cases are best treated when recognised soonest.

Lastly, I think the time has come seriously to consider whether it is not justifiable to try to save a patient who is dying on account of clot in the right heart and pulmonary artery. I think the symptoms are usually sufficient to justify the diagnosis, and when the patient is evidently dying the most desperate procedures become permissible. The clot is usually a big solitary one and can be reached from the trunk of the pulmonary artery. It is thick and strong and can be pulled out entire. The operation has already been attempted two or three times on the living subject for embolism, and there is reason to think that it can be done successfully. In pneumonia the condition of the patient is less favourable than in embolism, but on the other hand the operation could be done before such urgent symptoms supervene as in a case of embolism. I have done the operation several times on the cadaver and it seems to be quite feasible. The sternum should be trephined in three places high up, and reflected to the left with the cartilages of the second and third ribs. Doyen's trephine is the safest kind to use. The crown trephines are not at all suitable. The pulmonary artery can be very quickly exposed. It seems to be worth trying as offering the only hope in these cases.

THE RADICAL CURE OF HÆMORRHOIDS: MODIFIED WHITEHEAD'S OPERATION.

BY JOHN O'CONOR, M.A., M.D. DUB.,
SENIOR MEDICAL OFFICER TO THE BRITISH HOSPITAL, BUENOS AIRES.

SOON after I became resident medical officer of the British Hospital, Buenos Aires, in 1891, I undertook my first "Whitehead," and as I had not seen it performed at home I closely studied the steps of the operation in Sir Frederick Treves's "Operative Surgery." In accordance with the instructions in the book I commenced with forcible dilatation of the sphincter, and was rather surprised to find that I had in a moment converted a rifle bore into that of a Gatling gun—truly a startling change in perspective for a novice. I confess I had not proceeded much further on my way before I concluded that I was tackling a big job. However, by the end of an hour the operation was concluded, with considerable bloodshed. The wound healed somehow, no contraction supervened, and permanent cure resulted.

During the following three years I operated in a similar manner on 40 cases, one of which resulted in fibrous contraction and some few of which developed the unpleasant complication, moist eczema ("weeping bottom"). One day I was tempted to depart from the orthodox lines, and I omitted the dilating performance, with the result that I found that I did the operation in 20 minutes with comparative ease and little hæmorrhage, and that I had most effectively removed the whole pile-bearing area right up to what I shall describe as the supra-morgagnitic circle. Having sown the act I reaped the habit, and for the past 17 years no dilatation beyond the insertion of the index finger to examine for growths, ulcer, &c., has been practised by myself or by my assistants, with the result that in 450 cases the average time occupied by us did not exceed 15 minutes, and all the patients were in a fit state to get up by the tenth day, and generally left hospital two or three days later.

I wish to invite the attention of surgeons to the various steps of what is looked upon in this hospital as a trivial and absolutely safe and curative operation, and before doing so I wish especially to emphasize the fact that the object in view is not to remove the whole rump but only the thin cuff of mucous membrane along with the loose areolar tissue which contains the hæmorrhoidal venous plexus which lines the anal canal. Also, I most strongly urge the necessity of using the senses of sight and touch so that no nipping or injury be done to the external sphincter during the primary dissection, and that Sir Charles Ball's sound advice should be scrupulously followed—viz., not to encroach too much on the skin when making the primary circular incision. Once having absorbed these few rudiments the rest is easy.

The day prior to operation the patient receives 5 grains of calomel, followed a few hours later by an ounce of castor oil. On the morning of operation a large soap-and-water enema is given, followed by a mercurial sitz bath. Ether by the open method having been administered, the part is thoroughly washed with alcoholic mercurial lotion (hyd. bichlor., 1 part; tartaric acid, 5 parts; water, 200 parts; alcohol, 800 parts) and dry sterilised towels are placed above

and below the operation field. About one minute is deliberately spent in placing four of Lane's artery forceps to the four cardinal points of the anal circle; these, irrespectively of rugosities, are applied exactly at the junction of the mucous membrane and the skin. The forceps, say, on the north and east are seized, one by myself and the other by an assistant, the intervening portion is rendered taut, and with a good scissors the muco-dermal line is rapidly divided; the same process is repeated with the remaining three segments, and thus the circular discission is effected. So far I should say the operation has lasted three minutes. The depth of this primary cut includes skin and some subcutaneous tissue.

In the next stage I introduce my left index finger into the anal canal to act as a guide, and I snip carefully with scissors right round and straight down to the submucosa; as the external sphincter comes into view it is pushed upwards with a blunt dissector. This process of defining the submucosa and pushing the sphincter up out of harm's way must be thoroughly carried out all round, and on no account must any advance be made until the adit level is struck—the submucous coat, which "is composed of loose areolar tissue, which allows of a free movement of the mucous layer on the muscular coat, and which also admits, under certain abnormal conditions, of a prolapse of the mucous membrane through the anal orifice; the hæmorrhoidal plexus of veins is contained in this layer" (Cunningham). So convinced do I feel on this point that I honestly recommend any surgeon who cannot conscientiously satisfy himself that he has struck the Whitehead adit to sew the wound up, otherwise he will probably end in destroying the lower segment of the rectum. At the same time, I can guarantee anyone who cares to give this method a trial that he will be astonished to find with what ease, after a comparatively few snips of a scissors and gentle blunt dissection the whole lining of the anal canal can be freed from its attachments without any hæmorrhage worthy of the name. During this process of freeing the mucous cuff it is necessary to apply six or eight pressure forceps to the cut edge of the mucous membrane for traction purposes; the latter, by the way, must be done gently, for the forceps are liable to slip off or tear their way out. Indeed, it would express my thoughts better if I were to state that the mucous tube must be coaxed, not dragged, out of its bed. The cuff having been freed up to the transverse fold of the mucous membrane which indicates the site of the internal sphincter, I make a vertical slit in the former up to this point, and immediately suture the apex of the same to the skin, a series of small transverse snips are then made through it at this level, and I suture (continuous, No. 2 Lord Lister's catgut) as I go along. If any vessel spurts it is seized and ligated. When concluded the area of sutured circle ought not to exceed the size of a penny, unless there has been considerable previous prolapse, and even then a five-shilling bit ought to cover it.

I advise beginners not to suture too deeply; all that is necessary is to adjust the cut mucous membrane to the skin, and the less one attempts to use the suture for hæmostatic purposes the neater will be the line of union and the better will be the healing.

A morphine suppository is inserted, the part is thoroughly cleaned and dried, and a dry gauze sponge is applied and is kept in position by a pad of wool and a T bandage.

On the third evening 5 grains of calomel are given, followed by a tablespoonful of oil on the fourth morning. As often as the bowels act the dresser cleanses and dries the part, and reapplies dry gauze dressing. Frequently we find about the seventh day that there are some skin excrescences or tags remaining, which the dresser removes by first applying cocaine and then snipping them off flush with the skin.

On the tenth day the patient is allowed out of bed and is discharged a few days later with a pot of carbolised vaseline, into which he is instructed to dive his right index finger and insert the same into his rectum three times a week for a month.

It is no exaggeration to state that during the past ten years not half a dozen cases ever troubled to come back for inspection. In all my operations (some 500) I have had only two cases of fibrous stricture resulting, one of which I eventually cured by Hegar's dilators; the other patient, a Hebrew, ran away, and may have sought relief in the Pool of Siloam for all I know. We know of only one instance of even partial relapse, which occurred in a case in which the patient had subsequently developed cirrhosis of the liver. There has not been a death.

I wish here to take the opportunity of thanking my assistants Dr. Cruickshank, Dr. Phelps, Dr. E. Burr, and Mr. J. Morris, not only for their personal assistance at my operations, but also for the thorough manner in which each of them in turn mastered the details of the procedure, and put it successfully into practice in scores of cases.

I regret to have occupied so much space in so minutely describing the steps of this simple operation, but as I know for a fact that London students rarely see it performed I considered it expedient to enter very fully into detail. Why Mr. Whitehead's method should be tabooed in England I cannot surmise, unless it be due to some ignorant prejudice on the part of men in important clinical positions who have never troubled to master its details. Surely it is the acme of pedantic cant to be told by surgeons, who are unable to state that they have ever personally performed the operation, that Whitehead's is the worst one that has ever been invented for the cure of piles. What can be expected of any method if embryo surgeons are not taught how to do it in their hospitals? And I wonder what kind of results would hysterectomy, gastro-enterostomy, or even tracheotomy give under similar conditions. One might as well expect a man who had never been taught to bat to go in and make a century in a test match. As far as my knowledge goes, Whitehead's operation is the only one which merits the name of radical cure, and in my opinion it deserves universal application in the treatment of this common malady.

Buenos Aires.

MALIGNANT DIPHTHERIA WITH MULTIPLE LESIONS IN AN INFANT.[1]

BY J. D. ROLLESTON, M.D. OXON.,
ASSISTANT MEDICAL OFFICER, GROVE FEVER HOSPITAL, LONDON.

A FEMALE child, aged 6 weeks, hand-fed, was admitted to the Grove Fever Hospital for diphtheria on Dec. 4th, 1909. I am indebted to Mr. Redmond Roche, who certified the case, for the following history. The baby had suffered from snuffles since birth, but had shown no other signs of congenital syphilis. On Dec. 1st there was some nasal obstruction, but no discharge, and there was a small crack at the left angle of the mouth, but otherwise the mouth and throat were quite clean. The lungs were normal. The temperature was 99° F. On the 4th membrane was seen in the mouth and on the tonsils, and the child was removed to hospital. No source of infection could be discovered. On admission membrane was seen on the tonsils, anterior pillars, and uvula. Membrane was also present in the anterior nares, on the buccal mucosa, extending inwards for about an inch from each corner of the mouth, on the labia majora, and on the skin round the anus. From all these lesions diphtheria bacilli were cultivated. There were profuse nasal discharge, stertor, and a mucopurulent secretion from the eyes, but no membrane on the ocular or palpebral conjunctiva. 12,000 units of antitoxin were given subcutaneously on admission and on each of the two following days. The stools were frequent and green. On the morning of the 6th, in spite of an evident desire to take the bottle, all the feeds were regurgitated. Death occurred at 3.30 P.M. that day. During the three days that the child was in hospital the temperature did not rise above 98°.

At the necropsy membrane was found on the buccal mucosa, tonsils, anterior and posterior pillars, uvula, and epiglottis. The rest of the larynx and the trachea were free. There were double broncho-pneumonia with a recent infarct in the lower lobe of the right lung, and an ante-mortem clot in the right ventricle. The liver was large and congested. The other organs showed no macroscopical changes.

This case is of interest on account of the early age of the patient, the multiplicity and unusual situation of some of the lesions, and the malignant character of the attack. The

[1] A specimen of the case was shown at the Section for the Study of Disease in Children of the Royal Society of Medicine on Jan. 28th, 1910.

rarity of diphtheria during the first year, and especially during the first two months of life, is illustrated by the following figures. Of 7285 cases of diphtheria admitted to the Grove Hospital between August 23rd, 1899, and Dec. 31st, 1909, only 76, or 1·04 per cent., were under 1 year, and of these only four, including the present case, were under 2 months of age. This low morbidity has been attributed to various causes, such as immunity acquired in utero (Ehrlich),[2] antitoxin transmitted through the mother's milk (Schmid and Pfianz),[3] the acid reaction of the infant's mouth which is inimical to the growth of diphtheria bacilli (Monti),[4] and the relative isolation of children during the early months of life (Jacobi).[5]

Though the morbidity is low the mortality is high. In spite of serum treatment the mortality among the 76 patients under one year was 36·8 per cent., as compared with a mortality of 7·9 per cent. among the 7285 liphtheria patients of all ages. The high mortality is due to several causes. In the first place the infant's powers of resistance to infection are feeble under the most favourable circumstances, and they are still further reduced with artificial feeding, since gastro-intestinal troubles, as in the present case, are sure to be present. A blood examination which would probably have shown the absence of a protective leucocytosis was unfortunately not made in this case, but the lack of any reaction to the infection was illustrated in another way by the persistently subnormal temperature in spite of the extensive broncho-pneumonia. Secondly, the onset of diphtheria is unusually insidious and misleading in infants, often simulating an ordinary nasal catarrh. Serotherapy is consequently postponed until it is powerless to check the disease. Thirdly, the greater liability for diphtheria patients under one year to develop broncho-pneumonia helps to explain the high mortality. Thus the percentage of broncho-pneumonia among the 76 patients under 1 year was 28·9, as contrasted with a percentage of 1·10 among 7285 diphtheria patients of all ages.

As is the rule in infants, the diphtheritic process in the present case was primarily nasal, but instead of being confined to the nose, as is often the case at this age, the buccal mucosa and fauces were extensively invaded. As often happens in malignant diphtheria, the epiglottis was the only part of the larynx affected. The ano-genital diphtheria was probably due to auto-inoculation of pre-existent lesions due to diarrhœa. Cutaneous diphtheria, coexistent with diphtheritic angina, which was not infrequent in the time of Bretonneau and Trousseau, is rarely seen nowadays, and, as in the present case, is almost always the mark of a grave toxæmia.

The malignant character of the attack is shown not only by the extensive exudation and complete absence of reaction to antitoxin, but also by the early onset of palatal palsy, the occurrence of which before the third week is always a grave sign. Beyond slight epistaxis, no hæmorrhages were noted either in the skin, mucous membranes, or organs after death.

The case had been artificially fed, but children at the breast are not altogether immune to diphtheria. Epidemics in sucklings have been recorded by Siredey[6] in 1877 at the Hôpital Lariboisière and Hôpital des Enfants Assistés in Paris, and by Schlichter[7] in 1892 and Riether[8] in 1897 at foundling hospitals in Vienna. Six of Schlichter's 21 cases were from 1 to 3 months old and the rest from 6 to 20 days old. In 19 the fauces as well as the nose were affected. In the epidemic described by Riether 22 of the 31 infants were under 2 months old. All but 9, in whom the disease was purely nasal, had both faucial and nasal diphtheria. Most of Schlichter's and Riether's cases occurred in children naturally feeble or exhausted by previous illnesses, such as gastro-enteritis, bronchitis, or congenital syphilis.

I have been able to collect from the literature of the last ten years 11 sporadic cases of faucial diphtheria in sucklings whose ages ranged from 4 days to 8 weeks.[9] With antitoxin treatment 9 recovered and 2 died. In 8 the mother or other member of the family had recently had diphtheria. In the rest the source of infection, as in my case, was not discovered.

Grove Hospital, S.W.

[2] Quoted by Forest, loc. cit.
[3] Wiener Klinische Wochenschrift, 1896, p. 955.
[4] Quoted by Bilik, loc. cit.
[5] Twentieth Century Practice of Medicine, vol. xvii., 1899, p. 78.
[6] Thèse de Paris, 1877.
[7] Archiv für Kinderheilkunde, xiv., p. 129.
[8] Wiener Klinische Wochenschrift, 1897, p. 666.
[9] Auden: THE LANCET, vol. i., 1902, p. 1104. Bilik: Archiv für Kinderheilkunde, vol. xliii., 1906, p. 329. Forest: Ibid., vol. xlii., 1905, p. 75 (three cases). Lissner: Ibid., vol. xxvi., 1899, p. 371. Royer: The British Journal of Children's Diseases, 1908, p. 307. Seibert: Archives of Pediatrics, 1905, p. 116 (two cases). Steen: Brit. Med. Jour., vol. i., 1900, p. 575. Uffenheimer: Jahrbuch für Kinderheilkunde, vol. lxviii., 1908, p. 76.

Reviews and Notices of Books.

Progressive Medicine: a Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by HOBART AMORY HARE, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia, &c. Assisted by H. R. M. LANDIS, M.D., Visiting Physician to the White Haven Sanatorium, &c. Vol. I. March, 1910. London: Rebman Limited. Pp. 322. Price £2 net per annum (4 vols.), or 12*s.* each single volume.

THIS digest has now so firmly established its reputation as a most valuable summary of medical and surgical progress that further praise appears almost superfluous. The volume before us deals with the surgery of the head, neck, and thorax, with infectious diseases, with diseases of children, and with rhinology, laryngology, and otology. The first section is contributed by Dr. Charles H. Frazier and covers 113 pages. Among the matters with which it deals we may note the discovery that the facial nerve possesses some sensory fibres and the consequent operation for the removal of the geniculate ganglion for certain forms of otalgia; and also the advances made in the surgery of the pituitary body, in the direction of removal of tumours affecting this structure. Operation for the relief of Graves's disease is still in favour, and faith is still placed in oöphorectomy for cancer of the breast. In the domain of the surgery of the thorax advances are being made by means of the differential air-chamber, which may lead before long to procedures of great practical value; while operation for removal or relief of œsophageal cancer may also be proved feasible. The advice is given that in all operations for the removal of tuberculous glands in the neck, in cases in which there is any focus of disease in the lung, chloroform should be used for anæsthetic purposes.

The section on infectious diseases is written by Dr. John Ruhräh. In this field the proof afforded of the infective nature of acute anterior poliomyelitis is perhaps the most striking advance of the past year; while Still's identification of the microbe of posterior basic meningitis with the meningococcus has received confirmation. The writer notes that the common house-fly is "coming in for general condemnation as being a carrier of typhoid, dysentery, and of infantile diarrhœa, as well as other diseases at times, to say nothing of the contamination of milk and food by bacteria producing decomposition." In the field of treatment the leucocyte extract of Hiss has been found useful, while the view that stock vaccines are as efficacious as those cultivated from the actual patient (a view which we should hesitate to endorse) has led to more common application of this method of treatment. The study of leprosy has been stimulated by the annexation of the Philippine Islands by the United States, and one of the group, named Culion, has been set apart as a leper colony. The general opinion with regard to Calmette's ophthalmic reaction as a test for tuberculosis appears to be unfavourable on the ground of risk, but von Pirquet's modification may be valuable in children. A Wassermann reaction may be found in patients suffering from enteric fever before the appearance of the Widal test. In children with this disease perforation of the bowel is not uncommon; we are surprised to see the mortality of this accident placed as low as 44·28 per cent. The causal agent

of pertussis seems to have been identified by Bordet and Gengou.

No very striking advances in the domain of pædiatrics seem to have been made in the last year, but in the digest made here by Dr. Floyd M. Crandall we notice some work on the subject of the status lymphaticus, an obscure condition which is only gradually being elucidated, and in the field of infant feeding the unfavourable results obtained by the use of lactic acid bacilli in babies, as well as the doubt expressed as to the value of milk sugar as part of their dietary. The review of rhinology and laryngology is by Dr. D. Braden Kyle. Considerable attention seems to be at last being paid to the common "cold in the head," in which there would seem to be both constitutional and local factors, while the sequelæ of neglected colds are sometimes serious. Most recent work, however, has been devoted to the sinuses in connexion with the nose. In the fauces the tonsils are acquiring fresh importance from the point of view of the dentist, tonsillar trouble being both a cause and an effect of dental disease. The surgical treatment of laryngeal tuberculosis is now generally recommended. In the province of otology, here treated by Dr. Arthur D. Beal, much interesting work has been done on affections of the labyrinth and their connexion with nystagmus and vertigo, especially in relation to the so-called "fistula symptom." A plea is also made for more careful classification of cases of deaf-mutism.

We have only essayed in this brief account to glance at some of the matters noticed in the book before us. Each article is by a competent authority and is full of interest. We can cordially commend the book to all who are in need of a trustworthy account of recent researches in the subjects dealt with in this digest.

The Work of the Digestive Glands. Lectures by Professor I. P. PAVLOV, St. Petersburg. Translated by Professor W. H. THOMPSON, M.D. R.U.I., F.R.C.S. Eng., Trinity College, Dublin. Second English Edition. Illustrated. London: Charles Griffin and Company, Limited. 1910. Pp. 266. Price 10*s.* 6*d.* net.

THE first edition of this work—which secured for its author the Nobel Prize in 1901—appeared in its English garb in 1902. Much progress in the subject with which it deals has been made since then. We welcome this second edition, which has been brought up to date mainly by the addition of the results of investigations carried out by pupils or former pupils of the St. Petersburg Laboratory. Most of these additions are scattered throughout the text, and for the most part they can only be discovered by the reader on comparing the present with the first edition. The increase in bulk of from 196 to 266 pages is partly accounted for by two extra lectures which have been added by the translator himself (Lectures X. and XI.)—about 50 pages—which deal with the passage of food through the alimentary canal under the following heads: deglutition, movements of the stomach, and passage of the food through the small and large intestines. In the first edition the number of lectures was nine; in the present edition there are 13, including the two additional ones.

The new arrangement of the lectures is distinctly better, and we may also say that there are considerable improvements in the translation itself. Many sentences have been recast and verbal changes made and all are for the better. One alteration may be puzzling for English readers. Russian names such as the following in the first edition—Pawlow, Wassiliew, Kuwschinski, Bassow, Chigin, become respectively Pavlov, Vasilieiev, Kuvschinski, Bassov, and Khizhin. The newer spelling is the more correct, but several of these well-known men, notably the author now under review, have always been designated in our pages under the older style. Confusion is therefore inevitable unless the reader is on his guard.

The first three lectures are substantially the same with additions, a full description with an added illustration being given of the details for making Pavlov's stomach-pouch for obtaining pure gastric juice. The fourth lecture on the nervous mechanism of the salivary glands is recast, added to, and greatly improved. Here also we find a important correction on p. 70, where salivary fistulæ are dealt with. For in place of Mendeljeff's "clip" (p. 68, first edition), we find Mendeliev's "cement" (p. 70, second edition). The efferent nerves to the salivary glands are spoken of as "commanding"; afferent nerves exciting them, "signalising" nerves. The study of the afferent side of the salivary nervous mechanism—the functions of the peripheral end organs of the buccal nerves—and the psychic secretion of saliva are carried over into Lecture V., which closes with the interesting and well-known account of fictitious feeding and the psychic secretion of gastric juice. Here again new matter has been added. The value of appetite is again and again insisted upon. "Appetite spells gastric juice" (Lecture VI., p. 95). Water, it appears, is an excitant of the gastric glands even after section of both vagi nerves.

Lecture VIII. is devoted to the pancreas and is one of the most interesting of the series, having regard to the recent discovery of "secretin"—a full account of the work of Bayliss and Starling, as well of the earlier observers, being included. So far Pavlov has been unable to prove any exciting effect of starch on pancreatic secretion, while fat yields more direct results, and so does sodium oleate when introduced into the stomach of a dog. The author cites experiments which appear to him to point to a direct psychic influence through the secretory nerves of the pancreas, such as has long been established for the secretory mechanism of the stomach. He even maintains that water is an independent and direct excitor of the secretory mechanism of the pancreas.

One lecture (IX.) is devoted to bile and succus entericus, a much better arrangement than in the previous edition. The actions of erepsin, arginase, lipase, and enterokinase are discussed. The translator in his two lectures gives an admirable account of the movements of the alimentary canal and the propulsion of food along this tube. In his account he has included the researches of Cannon and Hertz by means of the X rays. Several useful figures are introduced, including some by Cannon and Hertz and Starling. These two lectures add very considerably to the value of the work as a whole.

We feel sure that this edition will prove most useful both to students and practitioners—in some respects more useful than its predecessor. We cordially commend it not only as an admirable example of the value of physiological research as an aid to practical medicine, and as a sure basis for the treatment of disease, but also as a repository of facts connected with one of the most interesting and practical fields of experimental physiology.

International Clinics. Edited by HENRY W. CATTELL, A.M., M.D., Philadelphia, U.S.A. Volume I., Twentieth Series, 1910. London and Philadelphia: J. B. Lippincott Company. 1910. Pp. 301. Price 35*s.* net.

AMONGST the many interesting articles in this volume are three dealing with the modern methods of diagnosis of syphilis. Dr. H. F. Swift (New York) writes on the serum diagnosis of syphilis. He discusses at length the principles upon which the method is based, the theories of the nature and mechanism of the reaction, and its various modifications. He then describes the practical application of the reaction. He considers that it should be an important guide in

treatment and lays down the following rules: 1. As soon as a positive reaction appears in primary syphilis treatment should be instituted. He considers that the reaction, with the presence of spirochæta pallida, renders a diagnosis positive, and that by starting treatment before the appearance of secondary symptoms a dangerous saturation with the virus will frequently be avoided and the peril of the patient becoming an active distributer of the spirochætæ minimised. 2. In the first three years of the disease treatment can be more rationally controlled than by merely following the rule of a certain amount of treatment with periods of rest. By means of frequent observations in many cases the disease can be controlled with a small amount of mercury, whilst others will require constant recourse to treatment. 3. In the late latent period a positive reaction is an indication for further treatment, and, as a rule, this should be continued until the reaction becomes negative.

Dr. H. Noguchi (Rockefeller Institute for Medical Research) contributes an article entitled, "Further Studies on the Serum Diagnosis of Syphilis, with Especial Reference to the Antihuman Hæmolytic System." He gives a detailed description of the method he has introduced. It differs chiefly from the Wassermann technique in using human cells and antihuman hæmolysin instead of sheep cells and anti-sheep hæmolysin. In this way the source of error arising from the hæmolytic serum for sheep cells is eliminated. The Newer Diagnostic Methods of Syphilis of the Nervous System are described by Dr. B. Sachs (New York). He concludes that the Wassermann reaction is a great addition to our diagnostic methods. He urges that it should be practised regularly in every neurological ward as a guide to treatment, and that a knowledge of it should be part of the equipment of every neurologist.

Other interesting contributions to this volume are: The Tuberculins and Their Diagnostic and Therapeutic Use, by Dr. J. B. Nichols (Washington); The Diagnostic Value and Therapeutic Effects of the Bismuth Paste in Chronic Suppuration, by Dr. E. G. Beck (Chicago); and Tabes Dorsalis: Its Rational Treatment in the Light of Its Real Pathogenesis, by Dr. T. A. Williams (Washington).

Fevers in the Tropics: Their Clinical and Microscopical Differentiation, including the Milroy Lectures on Kala-azar. By LEONARD ROGERS, M.D.Lond., F.R.C.P.Lond., F.R.C.S.Eng., B.S.Lond., Major, I.M.S., Professor of Pathology, Medical College, Calcutta. Second edition. London: Henry Frowde and Hodder and Stoughton. 1910. Pp. 428. Price 21s. net.

WE reviewed the first edition of this encyclopædic work in July, 1908. Since this appeared the present great advance in our knowledge of fevers in the tropics has necessitated the publication of a second edition. Inasmuch as the official duties of the author have rendered the work of revision very difficult, he has in the volume before us deemed it best to write an addendum comprising an account of the most important progress made during the last two years with regard to these fevers; the main additions relate to sleeping sickness, plague, blackwater fever, epidemic dropsy, and unclassified fevers. He has also recorded his further experience on the prevention of liver abscess by the cure of the early stage of the affection, and an important section on amœbic abscess of the liver based on a large number of cases, including recent advances in its treatment, has been added. We shall therefore in this review consider only the matter mentioned in the addendum.

With respect to kala-azar, Major Rogers opines from the facts ascertained by Ross concerning the biology of the parasites in this disease and in Delhi boil, that it is clear they are of different species, and hence that these two diseases are quite independent. Any prophylaxis for kala-azar to be obtained by the employment of a vaccine derived from Oriental sore is therefore not to be expected. Respecting sleeping sickness the author enters fully into the life-history of the glossina palpalis and the development of the trypanosoma Gambiense in tsetse flies. The prophylaxis of this terrible disease is considered under the heads of the destruction of the glossina palpalis, the destruction of the parasite in the human blood, the removal of the population from fly areas, and the prevention of the spread of sleeping sickness to new areas. As regards the actual treatment of a case, atoxyl, atoxyl and mercury, soamin, antimony, and arseno-phenylglycin are considered; and one fact with regard to these drugs stands out clearly—namely, that there is no one specific drug which can be relied on permanently to destroy the parasite within the animal tissues, as a few resistant forms survive and produce a relapse sooner or later, although the parasite may have disappeared previously from the blood, often for long periods. The most hopeful plan of treatment is to employ a different drug from that which has caused the parasites to disappear previously; thus, supposing this has been atoxyl, then when the relapse occurs mercury, arsenious acid, orpiment, or antimony should be tried.

Major Rogers next narrates his further experience of the ipecacuanha treatment of amœbic hepatitis in preventing tropical liver abscess. A number of instances of the success of large doses of ipecacuanba in rapidly curing very acute hepatitis with suspected abscess formation are now on record in India. At the European hospital in Calcutta this treatment was adopted in 25 cases during 1907–08. The very satisfactory result of this treatment is shown by the fact that in the general wards of this hospital no case has occurred during the last four years of acute hepatitis going on to the formation of liver abscess after admission, though previously this was a frequent occurrence. Still more striking is the number of patients sent from distant places for operation for liver abscess who completely recovered under treatment by ipecacuanha, having come under observation just in time to prevent suppuration taking place. Major Rogers has conferred a great benefit on suffering humanity by reviving the ipecacuanha treatment, which was so firmly impressed on his hearers by that master of tropical diseases at Netley, Surgeon-General W. C. Maclean, who always used to insist in his lectures that ipecacuanha was of equal avail in acute congestion of the liver as in dysentery.

In the chapter on æmœbic suppurative hepatitis the author gives a very comprehensive survey of the whole subject. He enters fully into its geographical distribution and the predisposing causes with regard to age, sex, and race incidence. As to the last factor, Major Rogers shows that liver abscess is much more common amongst the natives of India than has commonly been admitted hitherto. Alcohol, though by no means essential as a cause, yet predisposes in a marked degree; whilst as regards malaria, the author knows of no reliable evidence that it in any way favours the formation of liver abscess. The many points of difference between amœbic and bacterial liver abscess are pointed out, and we are glad to see it noted that there may be abscess without any fever whatever. Respecting the actual cause of tropical abscess Major Rogers holds this to be the amœba, no bacterial pyogenic organisms being required to assist its evolution. The relationship of antecedent dysentery to amœbic liver abscess has long been a subject of dispute, there having been much difference of opinion concerning this question. The author, as the result of his extensive experience as professor of pathology in the Medical College, Calcutta, definitely states that the whole of the evidence he has collected points to the former disease as constantly preceding the latter. This opinion should carry weight as being that of a thoroughly

trustworthy witness. The symptomatology, varieties, complications, and pathological anatomy are detailed in a manner leaving nothing to be desired. Finally, the various methods of treatment are portrayed. Attention is drawn to the great success following Manson's operation, Mr. Cantlie having had 32 recoveries in 100 cases. Major Rogers advises in addition the daily washing out of the intestine with sterile quinine solution, a method which he follows in his own procedure with his flexible sheathed trocar for sterile syphon drainage. He also advises that as soon as the patient can stand it a course of ipecacuanha should be given in the after-treatment of every amœbic liver abscess. Where the abscess has burst through the lung it is often difficult to decide whether operative procedures are advisable or not; the majority of cases make a good recovery without surgical interference, whilst where necessary the latter may be rather difficult to carry out. If the patient be losing ground the abscess should be drained through the chest wall without delay. This section ends with the method of treatment by aspiration and injection of quinine without drainage, a method introduced by the author; the experience so far clearly shows it to be worthy of an extended trial in all cases where there is no definite contra-indication to its adoption. The remaining sections of the addendum deal with epidemic dropsy, certain unclassified long fevers, the recent work on blackwater fever, and the etiology of plague.

In conclusion, we can only express the pleasure we have had in reviewing this work. No physician in India should be without it.

Die Krankheiten der oberen Luftwege. (*Diseases of the Upper Respiratory Tract.*) By Professor MORITZ SCHMIDT. Fourth edition. Edited by Professor Dr. EDMUND MEYER. With 180 figures in the text, 1 helio-engraving, and 5 coloured plates. Berlin: Julius Springer. 1909. Pp. 766. Price M.22.

Professor Edmund Meyer, in editing this the fourth edition of the late Professor Moritz Schmidt's work, has done so without either sinking his own identity or altering the previously expressed views of Professor Schmidt. The first and fourth chapters are devoted to anatomy and physiology of the upper respiratory tract, and these are more comprehensive than is usual in English or American text-books and go much more fully into the subject, though the desirability of doing so is quite open to discussion. We are inclined to think that the more a book is meant as a book of reference the less need there is for material properly belonging to works on anatomy, physiology, &c. The third chapter deals with errors of development and their causation; the fifth with general etiology and prophylaxis; next symptomatology, general and local, followed by methods of investigation, subdivided into illuminants, disinfection of instruments, position of examinee and examiner, and the methods adopted for each separate part of the upper airways, including the œsophagus. The medicinal local therapy, the galvano-cautery, &c., and the local operative therapy are all disposed of *seriatim* with an attention to minutiæ distinctly more frequently found in continental than in the Anglo-American text-books. Catarrhal conditions, acute and chronic, tonsillar affections, nasal sinus diseases, tuberculous and syphilitic diseases, and abnormal states of the upper respiratory tract caused by acute specific fevers, exanthems, and other diseases of the body affecting these parts, directly or indirectly, receive full attention at the hands of Professor Meyer. The chapters on new growths of the nose and throat are of peculiar merit, and those on nerve lesions and neuroses contain all that is known on the subject. Professor Meyer has performed a useful work in keeping all parts of this well-known book up to date. To students who are thorough German scholars it will prove of the greatest value, and for teachers it will form a real addition to their reference library.

LIBRARY TABLE.

Das Altern und der Physiologische Tod. (*Ageing and Physiological Death.*) Von M. MÜHLMANN, Prosektor in Balachany (bei Baku). Jena: Gustav Fischer. 1910. Pp. 44. Price M.1.20.—This brochure is one of a series of anatomical and physiological discourses that are issued under the direction of Professor Gaupp and Professor Nagel. Ageing and physiological death are both old and familiar subjects, more especially the former, though authors have treated them from very different points of view. Ageing is taken here as involving the idea of growth and the changes that accompany growth. The author deals with what he calls physical growth—i.e., the growth and changes in the tissues and organs which accompany age. To this end he begins with a study of what was formerly called fatty pigmentary degeneration in nerve cells, but which, in the light of recent researches, he prefers to call lipoid granulations; and he expresses the opinion that the enfeeblement of the nervous system with age is associated with anatomical changes in nerve cells, especially as represented in degenerative pigmentary atrophy. But pigment granules are not confined to aged nerve cells. They occur normally in young nerve cells, and undergo changes in depth of colour, aggregation and number, and perhaps in chemical constitution with age. This is an interesting chapter on the subject of pigmentary degeneration, and should be useful both to the physiologist and pathologist. The lipoid changes occur both in the protoplasm and in the nucleoli of the nerve cells. The degenerative changes associated with age are set forth on p. 13, and a summary of the author's views is given on p. 33. Indeed, he refers the atrophy of the skin, muscles, bones, brown atrophy of the liver and the heart which occur in old age, to degeneration of the nerve cells, and comes to the conclusion that "Der physiologische Tod ein Hirntod sei"—i.e., that physiological death is due to the brain. Proceeding to deal with physical growth, with its periods of progression and retrogression, he points out that all the various systems do not reach their several maxima at the same time. The retrogressive changes take place chiefly in internal parts because, compared with external parts, they are less efficiently nourished. Then follows an interesting account of the physical growth of the body, the weight of skeleton, brain, and muscles. The growth in the muscles and skeleton runs parallel with the total body weight, but not so the other organs. He then deals with the theories of growth, and regeneration of tissues and the elementary structure of living matter, and ends with the dictum, "Das Wachstum bewirkt den Tod" (Growth brings about death). It is an interesting and readable essay.

A Handbook for Nurses. By SYDNEY WELHAM, Resident Medical Officer, Charing Cross Hospital. London: Mills and Boon. 1910. Pp. 230. Price 3*s.* 6*d.* net.—This volume does not profess to be a manual of nursing, but rather to provide an elementary guide to the symptoms of the commoner diseases, and to the methods of treating them, which come into the nurse's sphere of action. The ideal of the book is not an easy one, and the result is decidedly unequal in value. It is not full enough for a book of reference, and as a text-book of general instruction its value is marred by inexpert writing and feeble construction. In spite of these defects, which may easily be remedied in subsequent editions, the author's wide and accurate knowledge of work in hospital wards has ensured a useful introduction to modern therapeutical methods and modern classification of diseases. Nurses will certainly find the handbook a valuable aid to their practical work, as the author

has the gift of writing down to the level of a lower scientific education than his own—a gift which by no means belongs to all.

Nightshade. By PAUL GWYNNE. London: Constable and Co. 1910. Pp. 431. Price 6*s.*—To those who like lurid portrayal of lurid incidents this novel will appeal. The story is a confusion of feverish incidents and unlikely characters, but it is certainly not dull. A musician, who is the subject of some form of defect of colour sense which is so intense as to render him completely blind, is the hero. The little science to which we are treated is as unconvincing as the character of the quack oculist who deals with the blind man. Only lovers of sensational fiction should attempt the volume.

Where Shall She Live? The Homelessness of the Woman Worker. By MARY HIGGS and EDWARD E. HAYWARD, M.A. London: P. S. King and Son. 1910. Pp. 216. Price, cloth, 2*s.* 6*d.*; paper, 1*s.* 6*d.*—This little volume gives an excellent account of the difficulties experienced by lone women in finding suitable housing accommodation in London and large towns. It is published under the auspices of the National Association for Women's Lodging Houses, and forms a considered reply to the numerous inquiries which are constantly addressed to the secretaries of this association. The authors have both wide and practical experience of their subject, though it covers such diverse fields as casual wards, common lodging-houses, and "living-in" barracks attached to large shops. The book is free from any undue sentimentality, and cannot fail to be of value to all workers for social reform who have to advise and assist young women.

JOURNALS AND MAGAZINES.

The Quarterly Journal of Microscopical Science. Edited by Sir E. RAY LANKESTER, K.C.B., F.R.S., with the coöperation of ADAM SEDGWICK, M.A., F.R.S., SYDNEY J. HICKSON, M.A., F.R.S., E. A. MINCHIN, M.A., and GILBERT C. BOURNE, M.A., F.R.S. With lithographic plates and text-figures. London: J. and A. Churchill. New Series, No. 218. Vol. LV., Part 2. June, 1910. Price 10*s.*—This part contains six articles: 1. The Structure and Life-history of Crithidia Melophagia (Flu.) an Endoparasite of the Sheep Ked, Melophagus Ovinus, by Annie Porter, B.Sc. Lond., Zoological Research Laboratory, University College, London, with two plates and 15 text-figures. The sheep ked, or louse or tick, is a blood-sucking dipterous insect, with extremely reduced wings, belonging to the Hippoboscidæ. The parasite is of peculiar interest, since Miss Porter is able to establish a double mode of infection, both hereditary and casual. Owing to the effective operation of the "dip" laws in England specimens of "keds" are hard to procure in this country, and it seems probable that they may become extinct. Many specimens of the melophagus, however, were found to be infected by a fungus, and when the fungus was present crithidia very rarely occurred; the fungus was fatal to the crithidia. Crithidia can be found throughout the length of the alimentary canal of melophagus ovinus. In the fore part they are small, rounded, non-flagellated forms, which when they come in contact with the blood rapidly develop and divide, the products of division becoming the typical flagellates throughout the rest of the canal. The ovaries and ova serve as places in which a kind of post-flagellate development occurs, passing through a resting stage. No flagellate was found in the sheep's blood. Miss Porter describes the very active movements of the flagellates. The blepharoplast or kinetoblast stains deeply. Chromidia are present. The flagellate divides longitudinally, and is described. Anticoagulin seems to be present in the alimentary canal of melophagus ovinus. 2. Studies in the Experimental Analysis of Sex, by Geoffrey Smith, Fellow of New College, Oxford, with a plate. This article deals with the effect of Sacculina neglecta on the male spider crab or Inachus and on young immature females. 3. Some Observations on a Flagellate of the Genus Cercomonas, by C. M. Wenyon, M.B., B.Sc. Lond., with 19 text-figures. 4. Some Observations on a new Gregarine, Metamera Schubergi (*nov. gen., nov. spec.*), by H. Lyndhurst Duke, B.A., B.C. Cantab., with two plates. 5. On the Anatomy of Histriobdella Homari, by Cresswell Shearer, M.A., Trinity College. Cambridge, with four plates and five text-figures. This animal is a normal inhabitant of the branchial chamber of the European lobster. It appears to be a highly specialised ossiculate form retaining many rotifera features. It is to be placed close to dinophilus. This article contains a very carefully drawn-up account of the histriobdella and ends with a good bibliography. 6. On the Artificial Culture of Marine Plankton, by E. J. Allen, D.Sc., director of laboratories and secretary of the Marine Biological Association, and E. W. Nelson, assistant naturalist. The solutions and the conditions for preserving the lives of many marine animals are given.

Jahreskurse für Ärztliche Fortbildung. August, 1910. (Annual Post-Graduate Course in 12 monthly parts.) Munich: J. F. Lehmann. Price 16 marks per annum.—This month's part deals with general therapeutics in the largest sense of the word. It is somewhat characteristic of the German attitude towards anæsthesia that this should be treated as a problem of pharmacology and dealt with by a pharmacologist, Professor Kionka of Jena. His article is devoted to a consideration of the various ether and chloroform mixtures and the very numerous methods and kinds of apparatus which are employed. The conclusion arrived at is that a proportion of chloroform to ether of about 1 to 5 or 6 is the best. The same author, under the heading of Balneotherapie, discusses the influence of baths containing a large proportion of calcium salts upon the metabolism. The rôle of calcium in relation to the blood and all the secretions, especially those of the genital organs, is being more and more recognised as a matter of importance. Dr. Strasser considers the subject of hydrotherapeutics in relation to the treatment of acute infectious diseases. The work begun by Brand, and now adopted almost universally in America and on the Continent, in treating enteric fever by regular baths is well known, and the results obtained have been so striking that it is wonderful how English physicians can still regard it with indifference. Probably they are prevented by popular sentiment from carrying out this treatment, and therefore it is hardly likely that it will be adopted in such diseases as measles and scarlet fever, in which we are told that it gives very good results. Dr. Determann gives an excellent summary of the various factors concerned in the action of air and light in the treatment of disease. The indications and contra-indications for this treatment are clearly set out. Dr. Strauss's article on chloride-free diet explains the advantages of this in the treatment of kidney diseases and dropsy, and it gives a very useful table showing the percentage of chlorides contained in the various common articles of diet. The subject of sick nursing is discussed by Dr. Salzmedel, who considers the newly introduced State examination for nurses in Prussia. A highly technical article on the reaction of living organisms to electrical currents by Dr. Frankenhäuser is followed by one by Dr. Holzknecht dealing with Roentgenology. The action of the X rays upon myomata, leukæmia, Graves's disease, and chronic arthritis is described, and some figures are given relating to the results obtained in hematology. The improved technique of Roentgen apparatus is

reviewed shortly. The volume concludes with an article by Dr. Freund on light treatment. Every page of this number is full of practical interest.

Edinburgh Medical Journal.—In the September number Dr. Arthur J. Hall and Dr. J. M. Beattie record a case of chronic interstitial pneumonia, which appeared to follow influenza. No bacteriological examination, except a search for tubercle bacilli, which was negative, is mentioned. The authors regard the pulmonary fibrosis as due to extension from the pleura. Dr. A. Dingwall Fordyce writes on the care of the infant and young child in Edinburgh; his article is to be continued in the next issue. Dr. R. J. Dick reports three cases of acute pancreatitis with hæmorrhage; the first patient recovered from one attack, to die in a second; the second patient recovered after operation; and the third died in spite of surgical aid. No gall-stone was present in the first case—the only one to come to necropsy. Mr. James Hodsdon gives notes of a case in which a sarcoma was successfully removed from the brain, the patient being still alive and well two years and four months afterwards.

Birmingham Medical Review.—In the August number Mr. A. W. Nuthall reports two cases of cervical abscess due to the diphtheria bacillus, in which recovery took place after specific treatment. In the first the true Klebs-Löffler bacillus was found and antitoxin used; in the second the "pseudo-diphtheria" bacillus was found and vaccine treatment employed. Dr. W. H. Wynn contributes a review of recent investigations on epidemic poliomyelitis.

New Inventions.

THE "QUARTZLITE LAMP."

By the courtesy of the Brush Electric Engineering Company, Limited, of Falcon Works, Loughborough, Leicestershire, we have recently been able to examine closely the properties of the intense light given by the mercury quartz lamp which they have placed upon the market for the purposes of general illumination.

The construction of the lamp is most ingenious, the mechanism of it providing for the automatic coupling up of the mercury electrodes, which is momentarily necessary before the light can be a going concern. The "burner" consists of a vacuum tube of quartz, this material having, in fact, made the mercury lamp possible, as glass is not able to withstand the heat. At either end of the quartz tube are small U tubes, which, containing mercury, serve as the negative and positive mercury electrodes. The tube is placed in a cradle, which on switching on the current tilts so that the mercury flows down, and the electrodes are momentarily brought into contact, and as they separate an arc is formed which vaporises and renders incandescent the small quantity of mercury existing in the vacuum space. The result is a steady horizontal column of intense light, which is very rich in those chemical active rays of the sun known as the ultra-violet rays.

A maximum of intensity is reached after a few minutes' working. The lamp can be connected with the ordinary socket usually employed for receiving the incandescent filament lamp on a circuit of from 100 to 250 volts, but the light given by the mercury-quartz lamp on this circuit is from 1800 to 2500 candle-power. The general appearance of the quartzlite lamp is seen in the accompanying illustration. It is probable that this system provides the most economical and efficient method of lighting large open spaces, such as harbours, docks, shipyards, sidings, and goods yards; while it is suitable also for textile, printing and other factories and workshops in which the colour of light is not so important as its quantity. These commercial applications are, of course, of great importance, and in the event of the system becoming general it is of equal importance to determine what the influences on health may be of the particular kind of light produced by the discharge of electricity through attenuated mercury vapour. On the face of it the effects should be in its favour, since to the ultra-violet rays of the sun are attributed the virtues of sunlight itself. They produce, for example, ozone, and the smell of ozone when the quartzlite lamp is "burning" is very obvious, and its presence is readily detected by chemical tests. It follows that the quartzlite lamp must have a favourable influence on the air, for organic impurities are readily destroyed by ozone. Then it is well known that ultra-violet rays are destructive to bacterial life, so that the quartzlite lamp is calculated to effect both a chemical and biological purification of the air in buildings where such purification is very often sorely needed. Of these purifying effects we have gained distinct evidence. The lamp imparts a curious and attractive freshness to the air of the room; there is a peculiar feeling of vitality about it characteristic of pure fresh air. Its oxidising effects are shown by the rapid appearance of iodine in an acid solution of iodide, effects which are absolutely identical with those obtained when sunlight is applied to the same reagent. Acid solutions of quinine exhibit a brilliant blue fluorescence in the rays, but the most brilliant demonstration of the richness in ultra-violet light of the quartzlite is seen when a solution of fluorescein is brought into the neighbourhood of the lamp. The light fails, however, to illuminate coloured bodies in the same way as sunlight owing to the absence of chiefly yellow and red rays, but this has been compensated for to some extent by the use of a pole of tantalum. Still the colour of the flesh appears somewhat ghastly owing to there being no response to red, and the face and fingers look a livid blue. These effects are, however, very much softened when the lamp is placed in a high-up position, and when the rays are diffused through a frosted globe. The impression the lamp then gives is that of a room brilliantly lighted by moonlight, soft, cool, and unirritating. The penetrating power of the light is great, and details are shown with remarkable sharpness. We hope to record later some experiments made with this lamp on certain pathogenic organisms. It may safely be anticipated that when this lamp is combined with some device which will supply the rays now missing in its spectrum an admirable source of illumination will be found, since it will be nearest sunlight that human agency has so far been able to find for artificial lighting purposes. As it is, it gives the active part of the sun's radiations in unstinted quantity.

FOREIGN UNIVERSITY INTELLIGENCE.—*Berlin:* Dr. Karl Franz, professor in the University of Kiel, has been appointed Professor of Midwifery and Gynæcology. Dr. Hübener, staff surgeon, who has published a considerable number of important researches, mainly on bacteriological questions, has been granted the title of Professor.—*Cairo:* Dr. H. B. Day and Dr. L. Powell Phillips have been appointed Professors of Medicine.—*Clausenburg:* Dr. Franz Veress has been recognised as *privat-docent* of Dermatology.—*Göttingen:* Dr. Wolfgang Heubner, extraordinary professor and director of the Pharmacological Institute of the University, has been promoted to be Ordinary Professor.—*Jena:* Dr. W. Stock, extraordinary professor in the University of Freiburg, has been appointed to the chair of Ophthalmology in succession to Dr. Wagenmann.—*Kiel:* Dr. Louis Michaud has been recognised as *privat-docent* of Medicine.—*Leysin:* Dr. Friedrich Quensel, *privat-docent* of Neurology, has been appointed to succeed the late Professor Windscheid as Chief Physician to the Schkeuditz Institute of Nervous Diseases.—*Marburg:* Dr. Paul Ostmann, extraordinary professor of otology, has been promoted to an Honorary Professorship. Dr. August Gürber has been appointed Professor of Pharmacology.—*Padua:* Dr. Ferdinando Soprana, *privat-docent* in Sassari, has been recognised as *privat-docent* of Pathological Anatomy.—*Palermo:* Dr. Ettore Savagnone has been recognised as *privat-docent* of Pathological Histology, and Dr. Gerolamo Rizzuto as *privat-docent* of External Pathology.—*Parma:* Dr. Andrea Manno has been recognised as *privat-docent* of Anatomy.—*Pisa:* Dr. Mario Carnis has been recognised as *privat-docent* of Experimental Physiology and Dr. Italo Franceschi as *privat-docent* of External Pathology.

THE LANCET.

LONDON: SATURDAY, SEPTEMBER 24, 1910.

The Present Position of Vaccine Therapy.

ALTHOUGH bacteriology is comparatively a parvenu among the biological sciences, its outlook was so tremendous that it was inevitable that it should profoundly influence the theory and practice of medicine. This was seen from the first by the more clear-eyed members of the medical profession, and its recent developments in connexion with the diagnosis, prophylaxis, and treatments of disease are bearing out their prognostications. It has rendered our conceptions of the reactive processes induced in the body by pathogenic organisms more exact and more definite. The abstruse and complex researches into the nature of immunity, which with their intricate, redundant, and involved terminology are the despair of the busy practitioner, have yielded practical results the importance of which it is difficult to over-estimate, and the ultimate applications and uses of which it is not easy to forecast. The discovery of serum therapy was a notable advance, and though it may be, as yet, of somewhat limited application, yet in regard to diphtheria and some other infections it has enriched our methods of treatment and prophylaxis. It is, however, in connexion with recent developments in the use of vaccines that interest and indeed controversy, sometimes of a somewhat acrimonious character, have been aroused. It is too often supposed that vaccine therapy is the newest form of treatment derived from bacteriological researches. This is far from being the case, since some of PASTEUR'S methods of treatment were by means of vaccines, while KOCH'S original methods of treatment by tuberculin were also of this nature. The new features in regard to vaccine therapy are its widespread applications, its developments in regard to mixed infections, and the claim that it should be controlled by the opsonic index. The report of the important discussion of the subject before the Royal Society of Medicine during May and June deserves careful consideration by all who are interested in the progress of rational therapeutics. It will appear soon in the journal of the society, and with the view of enabling our readers to follow the argument more readily we published in last week's issue of THE LANCET Sir ALMROTH WRIGHT'S introductory address, together with an abstract of the remarks of subsequent speakers. We do not now exactly review the present position of this means of treatment and the methods of dosage and control so much as indicate what are the arguments put forward for or against them. Sir ALMROTH WRIGHT in his interesting and stimulating address made a somewhat breezy digression as to the relations of the bacteriologist and the practising physician to one another and to the patient. We cannot quite agree with his contention that there is any desire on the part of clinicians to oppose the application of bacteriological methods, to belittle the achievements of the bacteriologists, or to prevent them from receiving their due professional recognition and emoluments. Speaking from our own experience here, where the joint work of the clinician and the bacteriologist is so often under consideration, we believe that there is an honest desire on the part of every right-minded practitioner to master not only the methods of bacterio-therapeutics but also, in so far as is possible to him, the principles underlying them also. We are, however, in complete accord in regard to Sir ALMROTH WRIGHT'S dictum that an acquaintance with bacteriological methods sufficient to enable them to be utilised practically should be part of the curriculum of every medical student. All will allow, we believe, that the patient must be studied at the bedside and that purely laboratory investigations can never, with safety, replace the careful study of the patient and his symptoms which forms the basis of clinical medicine. But there can be little doubt that methods of diagnosis and means of treatment will be evolved in laboratories to an increasing extent, in the application of which clinical knowledge and experience must continue to be of importance.

The essential feature of vaccine therapy is that it makes a direct appeal to the patient's own protective mechanisms and endeavours to evoke or to increase them sufficiently to enable a successful resistance to be made against the infective bacterial agent and its local or general effects. To quote Sir ALMROTH WRIGHT, the fundamental principle of vaccine therapy "is to exploit in the interest of the infected tissues the unexercised immunising capacities of the uninfected tissues." (The aphoristic phrase is but one of a score of felicities with which his address abounds.) The vaccine itself consists of bacteria devitalised by heat, or modified by some other agency or conditions, or it may be composed of extracts derived from the bacterial protoplasm by various means. The injection of the vaccine, if the dose be properly adjusted, leads to the development locally of antibacterial substances in quantities more than sufficient to neutralise the bacteria or bacterial substances introduced, leaving a surplus which can be carried by the blood and lymph to other parts to augment the resistance offered to the original infection. The response to the inoculation of a vaccine can be studied in various ways—first, the production of antibacterial substances can be measured by studying the opsonins, the agglutinins, or other antibacterial substances evolved; secondly, the effect of the injection upon the clinical manifestations of the infection—the local lesions, upon the temperature chart, and upon the general condition of the patient may be observed. Vaccines have now been employed in the treatment of a large number of infections, both general and local, with results sufficiently encouraging to warrant the hope that this method of treatment will prove to be of general application and utility. In some instances, for example, in furunculosis and other localised staphylococcal infections, and in cystitis and other infections of the urinary tract due to the colon bacillus, the results have been most striking, so that apart from questions of dosage and methods of control, this form of treatment has practically passed beyond the stage of controversy in these conditions. In regard to many other diseases it is still in the experimental stage, but in some of these, such as pneumonia, typhoid fever,

gonococcal infections, septicæmia, and endocarditis, encouraging observations are on record. Sir WILLIAM B. LEISHMAN, in his contribution to the discussion, referred to some observations made under his direction concerning the therapeutic applications of typhoid vaccines with results that he regarded as distinctly encouraging. In some forms of septicæmia and infective endocarditis vaccine therapy appears at present to offer the only hope of success, and in such conditions it is being extensively tried. In regard to tuberculous infections, there is considerable difference of opinion. By some writers tuberculin in one or other of its many forms is hailed as being of the utmost value, while by others its use is condemned. From published cases it appears to be of value in localised tuberculous lesions, including those of the skin and glands. In regard to pulmonary tuberculosis, no general consensus of opinion has yet been arrived at. It is used in many sanatoriums, and statistics are on record of cases treated with it giving greater proportions of successful results with longer periods of freedom than in cases not so treated. The question of auto-inoculation and its control by carefully graduated exercise and labour is also an important factor in the treatment of pulmonary tuberculosis, and one closely cognate to that of vaccine therapy. On the broad question of the value of tuberculin in the treatment of this disease the time is, however, hardly yet ripe for dogmatic pronouncement, and the attitude of the judicious is one of attentive expectancy—an attitude that has its wisdom though it is so often condemned as cowardly. The question of mixed infection is one which is now actively engaging the attention of the protagonists of vaccine therapy, and it is possible that the apparent failure of vaccine in some cases may be due to the fact that only one of the infecting organisms has been attacked. In any case, this aspect of the problem is one which demands careful consideration and one the further developments of which we shall await with interest. Sir ALMROTH WRIGHT in his plea for the general importance of vaccine therapy pointed out that "it is still comparatively unfamiliar matter that jaundice, bronchitis, common colds, many cases of asthma, infantile paralysis, and almost all cases of cardiac disease are one and all referable to microbial infection." He also brought forward evidence, which he regarded as suggestive, of the occurrence of a bacterial factor in the formation of scar tissue, in the production of X ray dermatitis, toothache, pruritus ani, hay fever, urinary calculi and enuria, and therefore he regards all these conditions as possibly open to amelioration by treatment with vaccines. Another application of vaccines which has afforded valuable results and is probably capable of yielding further advances is in the prophylaxis of disease. Prophylactic inoculations in connexion with typhoid fever and plague have now become almost routine procedures for those likely to be exposed to these infections. Sir ALMROTH WRIGHT goes so far as to suggest that since it is usual for each individual to possess a susceptibility to some special organism, vaccine therapy will in the future enable him to escape the consequences of this susceptibility by affording him a protection. We find him here on debateable ground, but he has thrown down a gauntlet which no one appears to have picked up.

Indeed, one of the striking features of the discussion before the Royal Society of Medicine was the fact that the speakers almost without exception testified to the value of the method of treatment by vaccines. The actual points which came in for criticism and discussion were the limitations of the method and the various modes of administration. The postulates laid down by Sir ALMROTH WRIGHT were in brief—the necessity for an exact and complete bacteriological diagnosis, kept up to date during the treatment; the necessity for bacteriological knowledge on the part of the person employing the method; the facts that there are definite limits to the responsive power of the patient, that successful results can only be obtained where an efficient lymph stream can be conducted through the foci of infection, and that in long-standing infections a long succession of inoculations may be necessary. He also maintained that in a not inconsiderable percentage of cases it is essential to success that the dose of vaccine shall be controlled by measurements of the opsonic index. It was this contention which was subjected to most criticism during the discussion. While many speakers admitted its utility, they pointed out the difficulty it imposed upon the use of vaccines owing to the time, labour, and expense involved in its repeated determination. Dr. T. J. HORDER said without compromise that the doctrine of the opsonic index was the great artificial limitation to the use of vaccine therapy, while Dr. A. LATHAM pointed out that if the opsonic index was necessary as a guide this must greatly restrict the utilisation of vaccines. All the speakers who regarded the opsonic index as unnecessary maintained that careful study of the temperature chart and of the clinical symptoms would afford sufficient indications as to the effects of the vaccines given, and enable the doses to be properly adjusted as regards quantity and as regards the intervals between the administration of successive doses. In connexion with the mode of administration, most of the speakers favoured the hypodermic method as more certain and more effective than the oral. The net result of the discussion was to indicate a widespread belief in the usefulness of vaccine therapy and to prove an expectation of great results from it in the future, when the questions of the proper control of dosage have been more definitely worked out. Our own contribution to the debate is of the tritest. It must be remembered that vaccines are potent agents and require using with discrimination and only when the bacteriological indications for their use have been established. Their indiscriminate or fortuitous administration is dangerous and can only lead to disappointment or disaster, and so to discredit of the method.

Surgery in Japan.

THE introduction of European learning into Japan has manifested itself in all branches of science, and in medicine and its ancillary sciences the progress has been as remarkable as in any other sphere of knowledge. At first the Japanese were indebted to European teachers, but only a few years elapsed before it was possible to supply all the professorial chairs with native students who had been trained in European universities. The receptive nature of the

Japanese mind made the absorption of foreign learning easy; its originality has enabled it to contribute its share to all branches of medical science. It is perhaps in pathology and bacteriology that we are indebted chiefly to Japanese research, and not improbably the intense power of application and attention to minutiæ so characteristic of the Japanese mind is peculiarly adapted to researches in these subjects. In the present issue of THE LANCET we publish the first part of an interesting summary of his recent clinical work by YOSHIHIRO TAKAKI, Professor of Surgery at the Medical College of the Tokyo Charity Hospital, and we hope in a later number to print as a sequel a further contribution from his pen dealing with the ever-fresh subject of appendicitis. The article appearing in to-day's issue deals with three matters: firstly, the treatment of internal piles by Whitehead's operation; secondly, the thymus treatment of carcinoma; and thirdly, perforation of the intestine in typhoid fever: the variety of the topics selected for treatment is a proof of the general preparedness of surgery in Japan.

Whitehead's operation from its introduction has met with a very mixed reception at the hands of the surgeons of this country. By some who use it largely it has been extolled as the best method of radical cure of internal hæmorrhoids; its results are looked upon as perfect, its performance is claimed to be simple, and harmful sequelæ are said not to exist. A very different opinion, however, is held by others, for these maintain that the operation is difficult, that the risk of a fibrous stricture is very great, and that much blood may be lost during its performance. By these the operation is utterly condemned, and as a consequence never performed. Where we meet opinions so diametrically opposed some explanation must be forthcoming, and this explanation is undoubtedly to be found in the method in which the operation is performed. The enthusiasm of those who perform the operation is very great, and amongst these must be classed Professor TAKAKI. He has, he tells us, performed the operation in 176 cases and he is thoroughly satisfied with it, but to attain his measure of success it is necessary, he claims, to pay attention to many details. He discusses the various stages of the operation, and the point on which he chiefly insists is the importance of performing the excision in stages. He considers deliberately the objections which have been raised against Whitehead's method. In text-books, for example, the complaint is sometimes made that the operation takes a long time, and half an hour has been given as the time required. Professor TAKAKI acknowledges that in some of his earlier cases, owing to his inexperience, the operation took about this time, but now he can perform it in from 10 to 15 minutes. The amount of hæmorrhage also is often advanced as an objection to the operation, but here we have it pointed out that if the method by stages of removal of the hæmorrhoidal tissue is used but little blood will be lost. Should a cicatricial ring form he considers that it is due to the giving way of some of the stitches, probably brought about by too early an action of the bowels. On two points in the after-treatment Professor TAKAKI insists. The patient must be kept in bed for at least two weeks and no aperient should be given until the evening of the ninth day. Of the 176 cases in which he has performed the operation all were completely successful except seven, and the failures appear to have been nearly all due to preventable causes—for instance, of the three cases of resulting stricture two of the patients left the hospital a few days after the operation, and we find the result was attributed to want of care on their part; and in the third case the bowels were allowed to act before the wound had had time to unite completely. There was one fatal result in which death was caused by pulmonary embolism. In this case the operation was performed on a patient in a condition of extreme anæmia caused by hæmorrhage from the piles, and Professor TAKAKI operated after trying, without success, other methods of arresting the hæmorrhage. It will be of interest to our readers to see another paper in THE LANCET of to-day on Whitehead's method of treatment of piles. This is by Dr. J. O'CONOR of Buenos Aires, who approves highly of the operation and has performed it some 500 times, the point that he considers of most importance in the technique being the omission of the usual preliminary dilatation of the sphincter. We are inclined to support both Professor TAKAKI and Dr. O'CONOR in their contention that the operation is capable of producing perfect results provided due care is taken of the mode in which it is performed by the surgeon. It is an interesting example of the wide dissemination of the doctrines of modern surgery that we should be bringing together under one cover contributions from such vastly separated sources agreeing in so many essential particulars.

The thymus treatment of carcinoma has been but little employed in this country, though the somewhat similar method of treatment by thyroid extract had a temporary and restricted vogue. Professor TAKAKI was induced to try the thymus method through reading an account of six cases in which Dr. F. GWYER of New York had employed it with some measure of success. Dried and powdered thymus gland was administered in doses of 1 to 4 drachms three or four times a day. It is regarded as essential that some sodium phosphate should be administered at the same time in order to eliminate the toxins set free. Professor TAKAKI has employed the method in six cases and he gives a brief report of its use in one other case by another physician. As the result of his experience he has come to these conclusions: There is a great diminution or even a total cessation of the pain. The size of the tumour tends to diminish, and if not its rate of growth is retarded. It will thus be seen that we are not asked to expect much from the administration of thymus gland, but it might be deserving of trial in inoperable cases. Lastly, Professor TAKAKI gives details of two cases of perforation of the intestine in typhoid fever in which he had performed laparotomy. In one case the perforation occurred on the twenty-second day and in the other on the thirteenth. It may be mentioned that in the second case no definite perforation could be seen, though at one place it may have occurred. In both cases the operation was borne well and complete recovery followed. We have made this attempt to focus the attention of our readers upon Professor TAKAKI'S paper, for we welcome the assistance afforded by the young and energetic nation of Japan in the solution of the many difficult problems of medical science.

The Meat Industry and Meat Inspection.

ANIMAL flesh occupies such an important place in the daily human dietary that no organisation can be too complete or careful which aims at procuring for the public an unblemished supply. It is certain that in the past some ugly revelations have been brought to light of the very undesirable and offensive conditions under which the business of many of the stockyards and slaughter-houses of the world has been carried out, and we are glad to remember that we have taken an active share in exposing the insanitary and inhumane methods which our Commissioners have found to exist at certain of our great meat-producing and meat-distributing centres. We know that our attitude on this subject has very materially assisted in strengthening the machinery which provides for the efficient inspection of both live-stock and meat, for it would not have been so resented unless it had been effective. The announcements made from time to time in this country and elsewhere in regard to the wholesale rejection of meat on the ground of its being unfit for human food, and of the seizure of large quantities of unwholesome animal foods in general, prove how necessary in the interest of the health of the community is a strict system of inspection. It would be assuming too much to say that any precautionary measures form an absolute safeguard to the public, for there will be found offal-mongers even in the most highly civilised community, who feel no compunction at all about purveying unwholesome meat to the public when the slightest chance is offered, just as there are milk-dealers who add water to milk in spite of the existence of the Food and Drugs Act. There can be little doubt, however, of the progress which has been made during the past few years in regard to bringing the question of meat-supply into a line with hygienic demands. When a system of inspection is thoroughly carried out, which commences with the live animal itself and the methods adopted for its slaughter, and proceeds to consider the carcass and finally the meat exposed for sale, we may hope for a reasonable assurance that the character of the public meat-supply may be trusted. Help is needed in this great hygienic movement, and fortunately there are not wanting signs that help of a substantial kind is constantly coming forward.

But it is a remarkable fact that until the issue recently of a comprehensive work[1] upon the subject, the great meat industry has possessed no authoritative text-book of its own to which those concerned in any branch of it could refer for trustworthy information. There are, of course, several excellent well-known manuals intended for the guidance of medical officers, inspectors, and others, but no work which could claim equally the attention and interest of, say, the breeder, the butcher, the curer, the salesman, the sanitary officer, and the abattoir official. In short, the meat trade has been so far without its peculiar encyclopædia. The publication, therefore, of a work which deals comprehensively with the interests and aspects of the producer, importer, seller, buyer, inspector, and consumer, and which bears the stamp of authoritative treatment, is an event of the utmost importance, having regard to the relations of a pure meat-supply to the public health. These relations will be fully understood by a mere inspection of the many realistic diagrams in the work under notice, referring to diseased organs and carcasses. In addition will be found upwards of a thousand illustrations of cattle, sheep, pigs, fish, poultry, as well as of all the instruments concerned in the technique of the cattle trade. Vital questions as to the defects of methods of inspection, as to standards which ought to be upheld, and as to the critical position of the meat markets are adequately treated from more than one standpoint. Well-recognised authorities on leading public health questions both at home and abroad have been appealed to, and the result is a collection of information by text and picture which cannot fail to advance the cause of a pure meat-supply. Original photographs have been placed at the disposal of the editors by Professor S. DELÉPINE of Manchester, Professor R. F. C. LEITH of Birmingham, and Dr. E. W. HOPE of Liverpool. The editors form a fortunate combination of a professor of comparative pathology and meat inspection, Dr. GERALD R. LEIGHTON, with an expert on the meat industry in the person of Mr. LOUDON M. DOUGLAS. The coloured plates, which are startling in their realness, have been drawn under the personal advice and supervision of Professor LEIGHTON. There are in all five quarto volumes which are handsomely bound, and a brief outline of the subjects apportioned to each volume shows how very thoroughly and broadly the entire question has been treated. Volume I. deals with the breeding of cattle, sheep, and pigs utilised for meat purposes. In this section also will be found an account, which makes very interesting reading, of the source and origin of the supply of meat for the British markets. Later, there is a section on the physiology of digestion and another on swine husbandry, and the diseases of pigs, while there is added a valuable account of the fish industry. In Volume II. reference may be made to the practical articles on the industrial and commercial aspect of the meat industry, including such subjects as abattoirs, sausage-making, refrigeration, and the use of by-products in preparing slaughtered cattle for the market. The same volume includes an important contribution on the standards of excellence used for the judging of meat in the carcass. An excellent attempt is here made to found the practice of judging the soundness of meat upon a scientific basis. In Volume III. the details in regard to practical meat inspection are set forth, and the meaning of bacteriology is made clear to the inspector and to the superintendent of the slaughter-house; while in Volume IV. the chief meat markets of the world are described. The fifth and last volume sets forth the present position of the law upon the subject, the regulations of the home Government, and the control which is brought to bear upon the exportation of meat from abroad to this country, while especial reference is made to the condition of the meat industry in the British colonies as well as to the frozen-meat trade.

Professor LEIGHTON and Mr. DOUGLAS have brought

[1] The Meat Industry and Meat Inspection, by Gerald R. Leighton, M.D., C.M., F.R.S.E., and Loudon M. Douglas. Five volumes. The Educational Book Company, Limited, London. 1910.

together a wealth of facts about an enormous industry which concern the welfare of every individual, and the publication of this work must be counted a decided asset both to the great meat industry and to those who are constituted its tribunal—namely, our public health authorities. Nothing is better calculated to champion the cause of a wholesome meat food-supply than an intelligent and reasonable combination between these two forces, the producers and their critics. We regard the issue of the work, therefore, as a real public service.

Annotations.

"Ne quid nimis."

THE INFLUENCE OF AGE AND TEMPERATURE ON THE POTENCY OF DIPHTHERIA ANTITOXIN.

IT has been customary to mark packages of antitoxins and sera with a date beyond which the contents could not be expected to yield their specific results. In the case of diphtheria antitoxin most of the producers have recommended the return of the packages in nine months, while a few have made the period as long as one year. Until recently, however, no definite data were available as to the keeping properties of such preparations, with the result that some physicians doubted the propriety of using an antitoxin when the time-limit had almost expired. In 1906 Dr. John F. Anderson of the United States Hygienic Laboratory started experiments to determine the rate of decrease in potency of diphtheria antitoxin, so that it might be known how much excess to allow for any loss in strength that might occur on keeping. His results, which have now been published,[1] show that the average loss in strength of 14 samples, when kept for three years at room temperature, was 44·2 per cent.; at 15° C., 24·6 per cent.; and at 5° C., 15·9 per cent. The average loss in potency of the same sera for two years at room temperature was 32·8 per cent.; at 15° C., 18·5 per cent.; and at 5° C., 12·4 per cent. The average loss for one year at room temperature was 18·7 per cent.; at 15° C., 10·2 per cent.; and at 5° C., 6·7 per cent. The maximum loss of any serum examined in three years at room temperature was 59 per cent.; at 15° C., 36·4 per cent.; at 5° C., 24 per cent.; and the minimum losses for the same period were 34·6, 16 7, and 12·5 per cent. respectively. One of the very interesting points brought out by these experiments was as to the relation of the antitoxic content of a serum to its therapeutic value. It was found that in the test mixtures the protective value of the serum was in direct accord with its unit value. For example, 1/1500th cubic centimetre of a serum containing 1500 units per cubic centimetre was of the same protective value as 1/150th cubic centimetre of a serum containing 150 units per cubic centimetre. It was noticed that all sera, even of the same age and kept under the same conditions, did not deteriorate in the same ratio. Whatever the cause of this may be it appears to be independent of external influences and probably depends on some inherent property in the serum. The addition of preservatives, such as chloroform and tricresol, apparently did not exert any influence upon the deterioration of the antitoxin, as there was no appreciable difference between the behaviour of sera preserved with these two substances. Dr. Anderson concludes that the opinion held by some physicians that sera bearing return dates which have expired should not be used is without scientific basis. The only reason for not using such sera would be that a larger amount would have to be given to make up for the decrease in potency. When diphtheria antitoxin is placed upon the market and kept under unknown conditions as regards temperature, it should be labelled with a return date not longer than two years and it should contain an excess of at least 33 per cent. to allow for decrease in potency. In addition, when the serum is sold in syringes with an absorbable piston, an excess should be added for this loss. Dr. Anderson found that dried diphtheria antitoxin when kept in darkness at 5° C. retains its potency practically unimpaired for at least five and a half years. It was not tested at ordinary temperatures, but Dr. Anderson thought that it would have retained its potency at 15° C., with at most a slight loss. The stability of dried serum having thus been established, it would seem that the dried form is peculiarly suited for shipment to the tropics and for use on ships making long voyages. The only drawback to its use appears to be in the making of a sterile solution, and this could be largely overcome by the exercise of aseptic precautions on the part of the producer and user of the serum.

[1] Bulletin No. 66, Hygienic Laboratory, United States Public Health and Marine Hospital Service, Washington, D.C., June, 1910, pp. 108.

THE ILLUSTRATED GUIDE TO THE MUSEUM OF THE ROYAL COLLEGE OF SURGEONS, ENGLAND.

IN a delightfully written volume of some 120 pages the Conservator of the Museum of the Royal College of Surgeons of England introduces the treasures under his charge to those who make their first visit to the world-famous Hunterian collections. This "Guide" to the Museum has been issued by order of the Council of the College, which latter institution is to be sincerely congratulated on its possession, in trust for the nation, of such a collection under a conservator at once so learned, so zealous, and so well equipped as a literary and scientific exponent. Dr. Arthur Keith has had some very eminent predecessors, notably Owen, who were unsurpassed in the care of that which the trustees of the Hunterian collection committed to their charge. It has been left to him, as it were, to put the last polishing touches to their work and to throw open the doors of the temple which they, perhaps, too jealously guarded. There is a vast, an almost grotesque difference, between the College Museum of to-day, popularised and accessible as the booklet before us proves, and the same collection a century ago. Then, as Mr. Conservator Clift's unpublished "Diaries" show, visitors to the Museum were rare and privileged persons—Princes of the Blood, distinguished savants from abroad, and small groups of our own medical men, who seem to have gone to the College oppressed with a sense as of exceptional favours being conferred upon them. Even as late as 1857 the feeling seems still to have prevailed that its precincts were very hard to enter and very awesome and medico-legal within. To laymen of that day it ranked with the Morgue of Paris. Charles Dickens gave voice to this feeling in the pages of his journal "All the Year Round," when he described the officers of the College as a kind of dignified ghouls, only prevented by their industry, combined with a love of gossip, from going raving mad in their gloomy and morbid surroundings! The sensational side of the Museum has been so often described that we need not do more than indicate some of the most notable specimens now authoritatively "calendared." Of the pieces of gut removed from the body of Napoleon the Great at the post-mortem examination in St. Helena, the conservator is now able to state "that a recent investigation of Napoleonic literature leaves little doubt that they are authentic." They are exhibited side by side with death-masks, modern English and

Peruvian mummies, a chastity belt, manacles for the insane, "Danes' skins" from church doors, and a curious Tibetan anatomical chart, in the newly opened historical cabinet, which has gathered within it specimens not of "intrinsic scientific value, but interesting because of past associations, or illustrative of superstitious customs long since passed away." The eighteenth century mummies in this collection (Mrs. Van Butchell and a young woman who died from phthisis) have always struck us as particularly interesting, for their faces are sufficiently preserved to give a good idea of the looks of everyday people more than a hundred years ago. The oldest Egyptian mummy, recently described by Professor Elliot Smith as "at least eleven hundred years older than any other mummy yet discovered," is in Room I. It belonged to Ra-Nefer, who seems to have been of "a corpulent habit of body." In the same room are the famous Barnard Davis collection of skulls, together with those of Eugene Aram and John Thurtell, and the skeletons of Caroline Grachami, the Sicilian dwarf, and of Charles O'Brian (or Byrne), the Irish giant, whose body John Hunter caused to be "snatched" on its way to a sea burial. Close by is the skeleton of Jonathan Wilde. The specimens of foreign bodies lodged in different parts of the human body have always attracted the attention of visitors to the Museum. They are now described. Among them are the shaft of a chaise, about which a book has been published, and the pivot of a try-sail, accompanied by one of Clift's admirable water-colour sketches. The persons transfixed recovered. The top of an iron railing is also mentioned which was extracted from a man's face by the donor, Sir Frederick Treves. Of the effects of lightning, as evidenced by a well-known exhibit of the tattered clothes and possessions of a labourer, the "Guide" remarks that they are apparently explosive in character. Here, again, the wearer of the clothes received only slight injury. The "Guide," of course, does not concern itself principally with the sensational exhibits which we have mentioned, but by them chiefly the Museum has always been known to the curious. "The whole Museum may be regarded as a discourse on the human body," and as such it is described. From the time of its inception by John Hunter this discourse has been kept steadily in mind by successive conservators and an able band of helpers, which includes such names as Huxley, Banks, and Brodie. Among the members of the Museum staff occur a number of distinguished names from Clift, Scharf and Silvester, to Doran and Shattock. Mention of these and of such collectors as Towne and Barnard Davis will be found in Dr. Keith's pages.

THE MICROSCOPIC EXAMINATION OF TUMOURS DURING OPERATION.

THE diagnosis of a tumour is often not complete at the time of commencement of an operation, and even when the growth has been incised a certain diagnosis may still be impossible from naked-eye examination only. In such a case anything that will transform this doubt into certainty should prove of the utmost value, for the operation to be performed in most cases will depend greatly on the diagnosis. Should the tumour be malignant, the modern extensive operation will be necessary if any hope of preventing recurrence is entertained. On the other hand, should a tumour prove to be benign in nature a very limited operation may be all that is needed. In the present number of THE LANCET we publish an article by Mr. E. H. Shaw, pathologist to the Great Northern Central Hospital, on the great value of the immediate examination of the tumour during the course of an operation. He mentions a large number of cases in which he has found the information so obtained of inestimable value to the surgeon, and he supplies details as to the methods which in his hands have proved most useful. The first essential for employing such a method is that it should be capable of giving a report within a very few minutes, and Mr. Shaw tells us that five minutes, or even less, will generally suffice. The prolongation of an operation to this amount is perfectly permissible, and on that score nothing more need be said; but another point of equal, or even greater, importance, is the certainty of the correctness of the report; and on this point there may not unreasonably be some grounds for difference of opinion. In many cases the diagnosis of malignancy may leap to the eyes, but in many the same degree of certainty can hardly be looked for. Even with all the assistance afforded by a series of sections the diagnosis may be very difficult or be even impossible. Therefore, in such cases it cannot be expected that the rapid examination of one or two sections in the operating theatre can supply a certain diagnosis. Some of the granulomata may closely simulate sarcomata, and mistakes may readily occur even with careful observers. A greater difficulty still must arise in those cases where a process, inflammatory in nature, has commenced the infection, and later on malignant disease has supervened. In such a case a single section may well mislead even a careful microscopist. We have no wish to belittle the method, for we feel that it is capable of affording valuable assistance at many a critical moment, but we would urge that too much must not be expected from the use of the method. Many things can be said in its favour, and these have been well put by Mr. Shaw in his paper, to which we refer our readers.

CLIMATIC DYSMENORRHŒA (?).

IN spite of the large amount of literature which has accumulated on the subject our knowledge of the causation of the pain in dysmenorrhœa is still of the scantiest description; we know but little of its causation, and our understanding of its pathology is equally imperfect. Whatever may be the exact cause of the pain, as to its occasional severity there can be no doubt, and the fact that in some cases it approaches in intensity the most severe forms of colic is well known to all practitioners. Whether the pain is produced by irregular painful contractions of the muscles of an imperfectly developed uterus, or by the excessive contractions of a hypertrophied uterus, we are at any rate certain of the fact that it is diminished or increased in direct proportion to the condition of the patient's general health. In many cases the onset of the pain follows some depressing illness, and in other cases it is directly associated with a condition such as anæmia or malnutrition, which requires treatment before any relief can be obtained. It is a well-known fact that in some of these cases a change of climate or of residence relieves or prevents the occurrence of the attacks. Of this it would not be difficult to collect a number of instances from medical literature, while a most striking example of the kind is to be found in the present issue of THE LANCET, p. 976. The case recorded by A. H. is certainly a most remarkable one, and appears to be an example of the relief of dysmenorrhœa by change of habitat of the most certain kind. Spasmodic dysmenorrhœa has been compared not inaptly to spasmodic asthma, and, indeed, there is a further analogy between the two diseases, for just as it is possible that some turgidity or erection of the bronchial mucous membrane plays a part in the production of the spasm of asthma, so we may believe that congestion of the uterine mucosa is a factor in the production of spasmodic dysmenorrhœa. Such an effect must undoubtedly often result from the sedentary occupation, the anæmia and the chronic constipation so commonly seen in cases of severe dysmenorrhœa. Further than this, a condition of catarrh of the uterine

mucous membrane is not uncommonly to be met with in these cases, and we do not think that such a condition is always to be regarded as secondary, while even if it is of this character it may well lead to an aggravation of the symptoms. If spasmodic dysmenorrhœa may be contrasted with spasmodic asthma, the fact that the former like the latter disease is often cured by a change of residence or of climate is not surprising. We know too little of the effects of climate and too little of the nature of dysmenorrhœa to explain how this result is produced. In cases of asthma in which the atmospheric conditions must be of immense importance it is what we might expect, but in cases of spasmodic dysmenorrhœa such a result when it does occur is undoubtedly most striking. That the gouty diathesis may also play a part in the causation of the pain is more than probable, but that the amount of lead discovered by in the drinking water of his patient was sufficient to be an important factor in the production of the spasm appears to us to be more doubtful. The explanation given by A. H. is ingenious, and as to the baleful effect of lead in producing abortion there can be no doubt. It must, however, be remembered that the cause of the abortion in cases of plumbism is the previous death of the fœtus attributable to the lead poisoning, and so far as we are aware there is no evidence to show that the administration of lead, even in large doses, is sufficient by itself to cause contractions of the non-pregnant uterus. That it may have aggravated matters by increasing the gouty condition of the patient is possible, but that it set up the painful uterine contractions is a much more dubious proposition. Indeed, it has been shown that lead passes readily through the placenta and diffuses itself through the fœtus, being found in the nervous system, the skin, and the liver; and the large mortality among children born of mothers suffering from lead poisoning is due to the accumulation of the poison in the nervous system. There is another interesting fact to be borne in mind with regard to A. H.'s communication, and that is that gout due to lead is much less common in the north where his patient resides than it is in the south of England.

THE STANDARDISATION OF DIGITALIS.

DIGITALIS is one of the few drugs that can still maintain unchallenged a place in materia medica; it has not had to share its therapeutic claims with some modern chemical creation. On the other hand, the cry for a preparation exhibiting a uniform action has long been sounded, and many are the attempts which have been made to issue a standardised preparation. A most valuable contribution to this chapter of pharmacology has been furnished by the recent publication by O. Schmiedeberg in the *Archiv für Experimentelle Pathologie und Pharmakologie*[1] of the result of experiments conducted on behalf of the German Imperial Board of Health with the view of elaborating a method of standardisation of digitalis leaves. After alluding to the fact that the uncertainty in the action of digitalis is often ascribed to differences in drying, time of collection, place of growth, &c., Schmiedeberg draws attention to an important point—viz., that the active principles of digitalis are relatively slowly absorbed, and that this occurs within an unequal length of time for each of the constituents. Therefore, leaves which possess the same pharmacological value may exhibit differences in action due to unequal absorption of the three principal constituents. The rate of absorption is also affected by the presence of gastric disturbances, for even on a sound stomach the preparation is badly borne. Another point to be remembered is that digitalein and digitalin are glucosides, while digitoxin is a hexosid or a pentosid, and these are easily split up by ferments and enzymes. This may occur in the intestines and lead to a reduction in the action of the drug. Schmiedeberg insists upon the necessity of first of all obtaining digitalis leaves of equal pharmacological value by establishing a direct connexion between the value of digitalis and some chemical body of definite composition. All other questions relating to the action of digitalis can only, in his opinion, be established by clinical research, but to carry these out he considers it necessary to first of all secure uniformity in the pharmacological value of all digitalis leaves issued for medical use. The experiments conducted by Schmiedeberg with this object were based on the use of three kinds of standardised digitalis leaves in powder and of strophanthin from S. gratus. The infusion was prepared in such a way as to correspond as closely as possible to ordinary conditions: 70 cubic centimetres of boiling distilled water were poured on one gramme of powdered leaves, and the infusion left for five minutes on the water bath, shaking occasionally. It was then filtered through paper, and sufficient water poured on the filter to produce 100 cubic centimetres. By this method it was found that only 5 per cent. of active principles were not extracted. For the experiments frogs were used, but instead of the method whereby the action of digitalis is referred to the weight of the frog Schmiedeberg applied the infusion direct to the heart, using as the medium ox blood diluted with two parts of a 0·7 per cent. solution of sodium chloride and the William apparatus. As a basis for the estimation of the pharmacological value of digitalis, the time required by a given amount to produce stoppage of the heart's action (stoppage of the ventricle) was taken. The following figures show the averages obtained from a series of 207 experiments:—

0·05 mgrm. of strophanthin caused stoppage of frog's heart in 32 mins.								
0·1	,,	,,	,,	,,	,,	,,	25	,,
0·15	,,	,,	,,	,,	,,	,,	13	,,
"A" leaves: 2 c.c. of infusion caused stoppage in 23 mins.								
,,	,,	3	,,	,,	,,	,,	10	,,
"B"	,,	2	,,	,,	,,	,,	27	,,
,,	,,	3	,,	,,	,,	,,	21	,,
"C"	,,	2	,,	,,	,,	,,	23	,,*

(* i.e., equal to "A" leaves).

From the above the following relationships in action may be deducted:—

2 c.c. of "A" leaves infusion equal to 0·114 mgrm. of strophanthin.								
3	,,	,,	,,	,,	,,	0·171	,,	,,
2	,,	"B"	,,	,,	,,	0·085	,,	,,
3	,,	,,	,,	,,	,,	0·128	,,	,,

(Leaves "A" and "C" were found to be of identical strength, therefore "C" is not mentioned.)

The result of these experiments would prove that the action of leaves "A" stands to that of leaves "B" in the ratio of 100 to 134—i.e., if for the preparation of an infusion 1 gramme of "A" were taken, it would be necessary to take 1·34 grammes of leaves "B" in order to obtain an equally effective infusion. The proportion found a rather startling confirmation when experiments were conducted in the same manner using digitoxin. It was found that stoppage of the heart occurred after 27 minutes with 0·1 milligramme, and after ten minutes with 0·2 milligramme of digitoxin. Compared with leaves "A" this gives an average of 2 cubic centimetres of infusion, equal to 0·128 milligramme of digitoxin, while for 2 cubic centimetres of infusion from leaves "B" the equivalent amount of digitoxin was found to be 0·095 milligramme, in other words, the same ratio of A : B = 100 : 134. In the course of the experiments an interesting fact came to light, showing that the season during which the frogs are obtained and the experiments conducted is not without some influence on the results.

[1] Vol. lxii., Nos. 4 and 5.

Experiments conducted in the months of January and February gave the following figures:—

0·05 mgrm. of strophanthin caused stoppage of heart in 32 mins.
0·1 ,, ,, ,, ,, ,, 25 ,,
0·15 ,, ,, ,, ,, ,, 13 ,,

In August and September the results were slightly different, showing that in these months the frog's heart has more power of resistance:—

0·1 mgrm. of strophanthin caused stoppage of heart in 31 mins.
0·2 ,, ,, ,, ,, ,, 23 ,,

Schmiedeberg does not propose that the above figures should be used as an exact comparison of the value of digitalis to strophanthin or digitoxin, but merely as aids towards establishing a basis for standardisation. The first step would be to standardise all the leaves issued, so that they all correspond to a fixed pharmacological standard of activity. In the following year the new leaves would be standardised so as to fully correspond with those of the preceding year, and so on. By this means it would be possible to settle the dosage by tests on patients, as the dose would be identical in both years, and he regards the question of dosage as being a matter of supreme importance. Digitalis does not act on patients in the same manner nor in the same proportions as exist between digitalis on the one hand and digitoxin or strophanthin on the other in frog experiments. He concludes his paper by advocating the establishment of a central institute, to which should be entrusted the task of supplying digitalis leaves of uniform pharmacological strength.

WERTHEIM'S OPERATION FOR "FALLING OF THE WOMB."

THE inefficiency of the great majority of the operations performed for the so-called cure of prolapse of the uterus and vaginal walls has long been the opprobrium of gynæcological surgery. The number of different operations which have been devised is very large, but their very number is evidence of the fact that in only too many cases they fail to effect their object. Nor is this a surprising result when we consider the nature of the tissues upon which these plastic measures have to be practised. The laxity of all the tissues of the pelvis and the mobility of the contents of the pelvic cavity is a *sine quâ non* in view of the function of child-bearing, and it is precisely the adaptation of the tissues to this process which leads to the common condition of falling of the womb and at the same time renders its radical cure so difficult. The ordinary plastic operations carried out with the intention of tightening up the tissues and so increasing the support given to the pelvic contents are so unsatisfactory that many gynæcologists in despair have abandoned their use. Those which aim at uniting the muscles when these are torn are no doubt more satisfactory, but it is just those cases in which there is little tearing but a great deal of stretching of all the tissues, including the muscles, which are the most difficult to deal with by ordinary plastic methods and which at the same time lead to the worst degrees of prolapse of the uterus. In the present number of THE LANCET Professor J. B. Hellier, in a very interesting and practical paper, draws attention to the operation originally devised by Wertheim and now largely practised by its originator and Professor Freund and Professor Schauta, and points out what an admirable operation it is and what excellent results it gives in selected cases. Our own experience enables us to confirm all that he says with regard to this operation. It is most important that other operators who have employed this method should, as he has done, publish the after-results of their cases after a sufficiently long period of time. In this way alone can we form a true estimate of the value of this or of any other similar operation. At the present time such after-histories are very few in number. While we agree with all that Professor Hellier says with regard to this operation, the very important objection must be remembered that it necessitates the sterilisation of the patient, a serious matter in a young woman, and one about which there should be a clear understanding before the operation is undertaken. There is another point to which we would like to direct attention, and that is the failure which is likely to result if the uterus is small and atrophied, as in such a case the cystocele often recurs. Luckily, in the very cases in which the operation is indicated, the uterus, far from being atrophied, is more often, as Professor Hellier points out, hypertrophied, and this objection does not therefore often hold good. In yet other cases, however, the uterus is too large, and it is necessary to excise wedge-shaped portions from the fundus in order to allow of its being fitted into place under the bladder. Deaths have occurred both from hæmorrhage and also where large resections of uterine tissue have been necessary. The operation should therefore only be performed in selected cases, and patients such as the one recorded by Professor Hellier, where the woman, aged 69, died, should not have such a relatively severe operation performed upon them. To this limitation he himself draws attention in his remarks. We trust that this paper may lead to other surgeons publishing their experiences of this operation in these troublesome but important cases.

THE PHYSIOLOGY OF THE CORPUS CALLOSUM.

AT a time when the study of cerebral physiology was an integral part of the science of metaphysics, philosophers and savants outdid each other in their endeavours to localise the soul somewhere within the encephalon. Descartes, for instance, placed it in the pineal gland, Willis, in the corpus striatum. The corpus callosum, forming as it does so important a feature of cerebral structure, was not likely to escape. Thus we find Lapeyronie, in a memoir presented to the Académie des Sciences in 1741, and entitled "Observations whereby an Endeavour is Made to Discover the Part of the Brain where the Soul Exercises its Functions," discussing whether the corpus callosum is not the abode of the soul. The clinical case which he quotes in support of his thesis is sufficiently curious. A comatose patient was trephined and an abscess of the corpus callosum discovered. Its evacuation led to an immediate recovery of the patient's senses, which became obscured as the cavity filled up again, and were recovered by a second operation. The daring experimenter then proceeded to pump some injection into the cavity by means of a syringe, and noted that "reason" and "sentiment" disappeared as he did so; they returned when the fluid was allowed to escape. Two months later "the patient was perfectly cured, and experienced no inconvenience whatever, although he had lost a considerable portion of brain substance," presumably of the corpus callosum. Dr. Lévy-Valensi, from whose work the incident is taken,[1] remarks that the most curious feature of the case is the recovery of the patient. The true value of the record, such as it is, is that it suggests that the corpus callosum has comparatively little physiological significance, and however surprising this opinion be there is no lack of evidence to support it. Experimental section of that structure in animals has led to equivocal results: in the most recent instance (a series of seven monkeys operated on by Dr. Lévi-Valensi) they were entirely negative. Electrical stimulation, again,

[1] Le Corps Calleux: Étude Anatomique, Physiologique et Clinique. By Dr. J. Lévy-Valensi. Paris: G. Steinheil. 1910.

has not proved of much value; the same observer obtained certain movements in animals differing considerably from those obtained previously by Mott and Schäfer; on the other hand, Ferrier, and also Lo Monaco, failed to elicit any movements at all. Many cases are on record of entire absence of the corpus callosum, in association usually with idiocy and imbecility. Yet there are other cases of this defect with integrity of cerebral function, and these certainly *donnent à penser*. In fact, it is quite conceivable that the mental impairment of patients with congenital absence of the corpus callosum is due not to that circumstance but to the commonly accompanying malformations, such as microgyria, cerebral sclerosis, and hydrocephalus. To deny any physiological importance to the corpus callosum, nevertheless, is ill considered, in view of recent advances that have been made in clinical neurology. Bristowe, Ransom, Schuster, Schupfer, and, more recently, Raymond, have endeavoured to establish a callosal syndrome whereby tumours of the commissure could be diagnosed. All have laid emphasis on certain mental symptoms of frequent occurrence, but there is nothing specific about them, unfortunately. Owing, moreover, to the general intracranial disturbance produced by tumours we cannot expect to learn as much of cerebral physiology from them as from localised vascular lesions. The most valuable and most instructive of all cases of corpus callosum disease have been two or three published in the course of the last year or two where there has been a thrombosis of the anterior cerebral artery, or rather of its branches supplying the genu of the corpus callosum. In these cases apraxia, or inability to perform certain movements without any paralysis, has been specially looked for and found. The study of this subject is difficult, and is, one might almost say, in its infancy, but evidence is slowly accumulating which tends to show that the corpus callosum, in its anterior part at least, is a structure whose function is to ensure that correlation of the hemispheres which is essential for the correct carrying out of a movement or series of movements, together constituting an "act."

THE FEE FOR LIFE INSURANCE EXAMINATIONS.

ALTHOUGH we have in many previous issues expressed our views in regard to the fees offered to medical men for examination of candidates for life insurance, it seems necessary from time to time to recur to the subject. A complaint from a correspondent that he has been asked to accept fees of 3*s*. 6*d*. to 7*s*. 6*d*. on insurances of £25 to £100 is the occasion of the present recurrence. The medical report which our correspondent is asked to furnish is as usual in two parts, the first a report of information elicited with expert knowledge and questioning of the candidate, and the second a report of the medical referee's detailed examination and his opinion as to the value of the life. A thorough and careful examination of the character required by the insurance company is not adequately rewarded by the fees that they offer. The company is entitled to expect a medical man to carry out what he undertakes, and as a matter of business it cannot be to their interests to underpay him. A medical man should remember that a document to which he appends his signature is a statement to which that signature attests his full and unreserved assent. The fact that the fee which is to be paid is not an adequate one for the task enjoined is no excuse for a perfunctory performance of the duty, but in the interests of the medical profession at large these paltry fees should be refused altogether and the work declined. If for actuarial reasons it is not possible to pay large fees upon small insurances, a medical opinion in general terms, founded upon a general impression without detailed examination, and carrying no responsibilities, may possibly be procurable for such fees as some companies are disposed to offer. This is a matter for the company, but we would earnestly enjoin upon all medical men the duty which they owe to themselves and their profession of refusing to furnish a detailed medical report for so paltry a fee as our correspondent has been offered.

TREATMENT OF EMBOLISM OF THE FEMORAL ARTERY BY IMMEDIATE MASSAGE.

THE treatment of embolism laid down by the authorities, with the exception of the recent operation of arteriotomy and removal of the clot, is generally declared to be the same as the treatment of venous thrombosis—rest. It is curious that the fact seems to have been overlooked that the problem is really essentially different in the two cases, and that so far from the indications being the same they may be diametrically opposite. In venous thrombosis the all-important indication is immobilisation of the affected limb lest a portion of clot be detached and pulmonary embolism result. In embolism the breaking up of the clot and driving it towards the periphery may be desirable, for this should favour the restoration of the circulation. Clinical evidence in confirmation of this view is not wanting, though it seems to have escaped the observation of many of our writers, yet the point was made in an annotation which we published some years ago.[1] An embolus may break up spontaneously and the circulation be restored. Potain published a case in which an embolus was first arrested at the bifurcation of the aorta, producing complete but transitory paraplegia; next day it had reached the external iliac artery, leaving the corresponding limb inert; on the third day it had reached the popliteal artery, as was shown by return of pulsation in the femoral.[2] As long ago as 1880 Deroyer proposed to break up the clot in embolism of the aorta by intermittent pressure. Several cases in which massage was successfully used to break up an embolus have been reported from time to time by French writers. At a meeting of the Société Médicale des Hôpitaux of Paris on June 10th M. Paul Claisse reported the following case. A woman, aged 33 years, suffering from mitral stenosis, which was evidently due to an attack of rheumatic fever at the age of 12 years, was admitted into La Pitié Hospital. The pulse was small and irregular, and there was slight œdema of the ankles. Under rest, milk diet, and digitalis she improved, and the œdema disappeared. At 7 o'clock one morning she felt intense pain in the left leg, particularly in the calf, and tingling and darting pains extended throughout the whole limb, even to the toes. At 9 o'clock M. Claisse saw her. The pain persisted, and he found the left foot very cold. Pulsation was present in Scarpa's triangle, but none was perceptible below this. Evidently there was embolism of the lower part of the femoral or of the popliteal artery. In order to break up the clot M. Claisse at once massaged the thigh and leg, performing energetically pétrissage of the tissues, especially over the internal surface of the thigh, calf, and popliteal space. The massage was well borne and did not increase the pain. The pain soon diminished, the temperature of the two lower limbs again became the same, and pulsation returned in the dorsalis pedis. In short, after 20 minutes the signs of embolism had disappeared. The clot was broken up into small portions which were carried to smaller arteries in places where the collateral circulation was assured and their presence was no longer a source of danger. Possibly such a favourable result might have followed spontaneously, but the early performance of massage greatly increases the chances of recovery. Professor Berger

[1] THE LANCET, 1903, vol. ii., p. 1517.
[2] Semaine Médicale, 1888, p. 65.

has reported a case in which the violent pains of embolism of the posterior tibial artery disappeared under massage. M. Pierre Merklen has recorded a case of mitral regurgitation in which the circulation in one lower limb became arrested above the knee. For nearly two hours he and a colleague, relieving one another so as not to interrupt the process, energetically performed pétrissage of the femoral, popliteal, and posterior tibial arteries until the patient was relieved. Heat and sensibility returned to the limb, but numbness and formication persisted, and pulsation could not be felt in the dorsalis pedis for two months. Eventually recovery was complete.

THE VACANCY ON THE IRISH PRISONS BOARD.

WE have already made reference to the fact that a vacancy is pending on the General Prisons Board of Ireland, and we trust that in making the appointment to fill the same, Mr. Birrell, the Chief Secretary to the Lord Lieutenant of Ireland, will give full recognition to the desirability of securing for the post a medical man specially qualified in mental diseases. Mr. Birrell in choosing his man regardless of all politico-religious influences, considering only the best interests of prison reform, would have the support of the whole medical profession, and it is to be hoped he will select a candidate of administrative experience, having a knowledge of psychiatry, and, if possible, someone who has done work in criminology.

THE TREATMENT OF PNEUMONIA.

IN another column we publish an interesting article on Pneumonia by Captain W. E. McKechnie, I.M.S. The writer makes some suggestive observations on the mechanical conditions which may occur in the chest in adults suffering from an infection with the pneumococcus of Fraenkel, and these remarks will well repay perusal. Captain McKechnie's views on the treatment of the disease will most likely meet with considerable criticism, and the majority of physicians will probably consider that he has not altogether succeeded in establishing the standpoint he has taken up. With regard to the employment of morphine in cases of pneumonia, its administration in the early stages can be recommended. As he suggests, when pain prevents sleep, or if there is much restlessness, or "if the amplitude of the respiration appears to be sufficiently diminished to cause an accumulation of carbon dioxide," then morphine, given in the doses suggested by Captain McKechnie, may be given with advantage during the first and second day of the disease, but when the disease is well established it must be given with great caution, and the hypodermic injections are better replaced by Dover's powder. To clear the intestines by means of a purge is certainly desirable, but the suggestion that the intestinal canal should be kept empty and that only water should be given is certainly one that requires close attention before it is generally adopted. Elderly or weakly patients especially require quantities of nourishment, and diet is rather a matter which must be considered in regard to each individual patient; no general rule can be adopted without some risk. Captain McKechnie considers that the chief danger in pneumonia is that the blood may coagulate and form a white thrombus, which "attaches itself to the tricuspid valve and gradually grows into and blocks up the pulmonary artery," and he even goes so far as to suggest operative procedure. He remarks that the clot is "usually a big solitary one, and can be reached from the trunk of the pulmonary artery. It is thick and strong and can be pulled out entire." He proposes that the sternum should be trephined in three places high up and reflected to the left with the cartilages of the second and third ribs, when "the pulmonary artery can be very quickly exposed." It is true that after death the heart, particularly its right chamber, is distended with firm, tenacious coagula, but we believe that ante-mortem clotting has not been definitely proved to occur in pneumonia, although this phenomenon has been said to take place; the majority of observers still hold that the extensive clotting takes place during the death agony. Although we have criticised some of Captain McKechnie's remarks, nevertheless the communication as a whole is an instructive one and contains much that will be found useful in the treatment of pneumonia, apart from its debateable suggestiveness.

VOMITING OF BRAIN TISSUE IN FRACTURE OF THE SKULL.

IN the *Boston Medical and Surgical Journal* of August 4th Dr. Gordon T. Brown has reported a case of fracture of the skull in which the diagnosis was aided by the finding of brain tissue in the vomit—an occurrence so rare as to constitute one of the curiosities of medical literature. On June 8th, 1907, at 11 P.M., an electric-car conductor, aged 35 years, stepped from the rear platform on to the running board while his car was going rapidly round a curve. His head struck a telegraph post and he was knocked off the car. He was taken to hospital, where he arrived about 1 A.M. In the admission room he remained quietly in the dorsal decubitus position. The pulse was 88 and good, but slightly irregular, and the respirations were 40. The eyelids were greatly swollen and closed. The pupils were moderately and equally dilated and did not react to light. Over the right frontal bone was a deformity, apparently due to a depressed fracture. The patient began to vomit blood and stomach contents. Once he vomited so suddenly that some of the vomit, instead of being received into the basin, fell on the blanket on which he lay. In this a piece of tissue, measuring about 1·5 by 0·5 centimetres and looking like brain, was noticed. This view was confirmed by section, which appeared to show white and grey matter. The specimen was placed in alcohol. A mouth gag was inserted, a procedure which was actively resisted, and blood was seen oozing from the naso-pharynx. The vomiting of bloody fluid continued for eight hours. The patient grew restless and noisy and had to be held in bed. He was unable to take food and passed urine involuntarily. At 9 P.M. on June 9th an operation was performed for the depressed fracture of the frontal bone. A piece of bone measuring 3 by 2 centimetres was removed. No improvement followed, the respiration became of the Cheyne-Stokes type, and death occurred on the 12th. The necropsy showed an extensive stellate fracture of the right frontal bone, with which a fracture of the orbital plate was continuous. There was also a comminuted fracture of the cribriform plate. The orbital and lateral surfaces of the frontal lobe of the brain were lacerated extensively. It was thought that a portion of the orbital cortex might have been torn off and carried into the nose. Microscopic examination of the piece of tissue found in the vomit confirmed the view that it was brain and rendered the conclusion probable that it was derived from the orbital cortex. It showed the intermediate precentral type of cell arrangement and was distinguished from motor cortex principally by the absence of the large Betz cells.

THE opening address of the winter session of the Central London Throat and Ear Hospital, Gray's Inn-road, will be delivered by Dr. Purves Stewart on Monday, Oct. 17th, at 4.30 P.M.

A VISIT TO PROFESSOR TREUPEL'S CLINIC: THE USE OF "606."

BY J. G. GARSON, M.D. EDIN.

THE rush to Frankfort to see the results of using "606" reminds one a little of that made some years ago to Berlin when it was announced that Koch had discovered a remedy for tuberculosis in tuberculin, but in the present instance it is on a smaller scale. Nevertheless physicians and surgeons from all quarters of the globe have flocked to Frankfort to learn what they could about "606." Patients have also repaired thither, often from great distances, hoping to have an injection of "606" administered to them to cure their ailments and enable them to return next day. Professor Ehrlich's Institute has been besieged with visitors all anxious to obtain his new "Mittel," but their hopes and desires receive a sudden and probably unexpected cold douche on entering, for there is posted up the announcement, "Präparat 606 kann wegen Materialmangel vorläufig nicht abgegeben werden" (Preparation "606" cannot be given out for the present on account of its scarcity). Other notices bear the more consoling information that "demonstrations of '606' patients" will take place in the skin clinic of the town hospital on Monday, Wednesday, and Friday mornings at 9 o'clock, and that Professor Ehrlich's consulting hour for physicians is from 12 to 1 o'clock. Taking heart then, I went to see Professor Ehrlich at the appointed hour, and on entering his waiting-room found several physicians from Russia, Austria-Hungary, Roumania, Scandinavia, and other places on the same errand. Our names having been sent in, Professor Ehrlich received us *en bloc*, and told us how impossible it was to issue the material at the present time, as experiments are being made with it not only as to its effects, dose, &c., but as to satisfactory means of administering it, and until more progress has been made in getting it into practical form it could not be made available for the profession generally. One cannot but sympathise with Professor Ehrlich, inundated as he is with correspondence and visits from all quarters and from all conditions of men, and recognise that he is taking the best and most sensible course in hardening his heart and refusing to have his preparation prematurely issued.

The demonstrations of patients treated with Ehrlich's preparation at the Städtisches Krankenhaus have been well attended by earnest bands of medical men anxious to learn what they could about the treatment. The cases shown have been those of syphilis in all stages, ranging from primary sores to tertiary forms. In many instances the results are very striking, ugly sores healing up rapidly after the injection without any other treatment, and in several instances without much pain following the injection. In other cases a good deal of pain, lasting from two to 11 days (the latter in one case), has been caused by the treatment. There were two cases shown in which the results were not so good, the injection being followed in one case by abscess and in the other by a large slough of the skin over the seat of injection. Two cases were shown in which the injection was not followed by much progress in the healing of the sores and in which "606" was experimentally applied with good effect to the sore itself. From the cases shown at the demonstrations, even at this stage, the new remedy must be regarded as an important and powerful factor in the treatment of syphilis. The demonstrations were strictly confined to *showing* patients on whom the injection had already been made, and it was very evident that considerable dissatisfaction existed amongst the visitors, all of whom were medical men, in many instances holding important posts in their own country, that so little information was given generally and that absolutely nothing was said about the manner in which the preparation was being used—a matter of much importance, as we were all aware that different methods were being followed. So much then for what I may call the official demonstrations arranged for Professor Ehrlich's visitors.

A meeting of the Medicinischer Verein was held at Frankfort on Sept. 12th, at which communications of great interest were made upon "606" by Professor Treupel and Dr. Weintraud, who narrated their procedures and experiences with it. Their papers will no doubt be published shortly and will well repay perusal. Professor Treupel administered the preparation by subcutaneous injection and described the changes he had found desirable to make in preparing the injection, dose, &c. He showed some patients in whom excellent results had been obtained. In one case the patient showed before he had undergone the treatment well-marked paralysis of one side, Romberg's sign, ptosis, and other nerve symptoms of considerable standing, all of which had almost entirely disappeared. Dr. Weintraud, on the other hand, advocated intravenous injection and set forth its advantages, claiming that the effects were much more rapid and the pain less. Professor Ehrlich took part in the discussion and was received with much applause. That much remains to be done yet in determining the best form in which to make up the preparation for administration, as well as in giving it to the patient, is the impression which one would undoubtedly form as a result of the discussion at the meeting.

Professor Treupel was good enough to invite me to his clinic at the Krankenhaus zur Heiligen Geist, and I gladly availed myself of the invitation. If visitors felt that they did not see as much as they would have liked to see at what I have called the official demonstrations, previously alluded to, the same could not be said regarding Professor Treupel's clinic. Nothing could exceed the kindness and attention given us by Professor Treupel and his assistants, and every item of information that we asked for was generously and freely placed at our disposal. An assistant was told off specially to show us the cases in which "606" had been used, so that we had not only time to see them, but also to examine them carefully each day, and later we had the advantage of going round the wards with Professor Treupel and of hearing his clear and impressive remarks upon them. Here also the effects of the preparation in para-syphilitic conditions, such as tabes and the like, could be observed, as well as cases showing more recent syphilitic infection. After the visit we saw the "606" prepared for injection and the injection administered, and could follow the subsequent effects it produced upon the patient and the disease. The doses used of "606" usually vary from 0·3 to 0·9 gramme and are regulated by the sex, bodily weight, and condition of the patient. In most cases 0·6 gramme is the amount used. The now celebrated preparation is a yellow powder which is put up in glass ampullæ. The manner in which it is now usually prepared for injection is as follows: The end of an ampulla is broken off and the contents turned out into a small mortar. To the powder is added a certain quantity of a 20 per cent. NaHO solution, the amount varying with the quantity of the powder used in the proportion of 0·072 cubic centimetre of NaHO solution to every 0·1 gramme of "606." Thus for a dose of 0·6 gramme of "606" there is added 0·432 cubic centimetre of NaHO solution. The powder and sodium solution are thoroughly rubbed together into a paste, and chemical action between the materials results whereby an interchange of atoms takes place which can best be explained by the use of the chemical formulæ. From 1 to 2 cubic centimetres of distilled water is added to the paste and triturated very thoroughly till the mixture forms a fine homogeneous cream; finally, 5 cubic centimetres of physiological NaCl solution (strength 0·75 to 0·9 per cent.) is stirred up with the cream-like mixture to thin it down to a consistence sufficiently fluid to be injected. The injection mass is then tested to ascertain that it is quite neutral. Meanwhile the patient is prepared for the operation; the spot at which the injection is to be made, usually just below the lower angle of the scapula, is carefully washed with soap and warm water, and without loss of time after the injection fluid is ready it is drawn up into a sterilised syringe and injected into the patient's back fairly quickly and with steady pressure. Delay in injecting the dose when ready is apt to cause a block in the syringe in consequence of the fluid becoming viscid at the orifice. The needle used for the injection is a moderately coarse one. The pipettes, rods, and glasses used in the process of preparing the fluid are thoroughly sterilised and the solutions of sodium salts are freshly prepared. It should be noted that Professor Treupel lays stress upon the needle being introduced thoroughly below the skin and the injection made into the subcutaneous cellular tissue so as to avoid the possibility of abscess formations or sloughing of the skin subsequently. He also introduces the needle nearly its whole length and gradually withdraws it as the injection fluid is pressed into

the tissues. After the needle is entirely withdrawn a small piece of gauze is placed over the puncture and retained by a piece of rubber plaster. Little action is shown in and about the site of the injection next day, but by about the third day infiltration of the part is quite discernible and steadily increases for several days till a hard mass can be seen and felt, which is only gradually absorbed after several weeks. When the injection is prepared and given in the way just indicated it is usually followed by little or no pain or rise of temperature, nor have any serious complications occurred under Professor Treupel's own hands; but in two cases out of over 150 erythematous eruption followed, which in one shown us had spread from the seat of the injection over the body, but was not attended by any serious consequences in either instance. The mode described of preparing the injection is known as Blaschko's method. Another method used by Professor Treupel in preparing "606" for injection is dissolving it directly in liquid paraffin. This gives a rather more viscid solution than the other method and a larger needle has to be used. When the paraffin solution is used it is injected into the glutei muscles.

Professor Treupel lays stress upon the patient being kept very quietly in bed for several days after the injection has been made. The Wassermann reaction is tested before and after the injection. A positive reaction given by the patient before injection usually becomes negative afterwards and remains so, but the preparation is used in cases also when the reaction is negative from the first. The improvement shown in the cases of syphilitic origin is very marked. Several had been previously treated by mercurial inunction and by injection with little improvement till "606" was used, after which sores healed rapidly, and throat and skin affections, including indurations, rapidly disappeared. Cases of periostitis very quickly showed signs of subsidence. The injection has been practised on some cases of tabes, but it would be premature to say what its effect will ultimately be. A case of psoriasis widely spread over the body (non-specific) was injected with 0·6 gramme and was watched by us with much interest; certainly some improvement was visible within a few days.

Frankfort a/M., September, 1910.

THE WANDERING WOMB AND FUMIGATION:

A CHAPTER IN PRIMITIVE GYNÆCOLOGY.

BY DAN MCKENZIE, M.D. GLASG., F.R.C.S. EDIN.

No department of early medicine contains so many strange beliefs and ideas as that which concerns the sexual and reproductive functions. In this department the diver into the depths of folk-lore and primitive physiology finds many nooks and crannies full of the most absurd and amusing speculations, but there is probably none so absurd and none so amusing as that which looked upon the uterus, not as an organ of the female body, but as Aretæus called it, "as it were an animal," living an independent, though not, strictly speaking, a parasitic life within the body of its hostess, an animal which could move about not only inside but also outside the body, which manifested likes and dislikes, and which required food for its support and maintenance like any other animal.

That this extraordinary belief was held by our medical forefathers in all seriousness as a definite, formal, and recognised doctrine is evident from the fact that, having passed from the popular philosophy into the classical physiology of ancient Greece and Rome, it influenced, as we shall see, the ideas even of Plato, Aristotle, and perhaps also Hippocrates, to say nothing of many more recent teachers of medicine.

What the age of this strange idea may be there are no trustworthy records to prove, but from the fact that it is met with widely over the world, and that its traces are evident in the Ebers papyrus, we may confidently surmise that the belief must be as old as civilisation itself, and perhaps older. With regard to the ideas which gave rise to it, there is still less reliable evidence upon which to base a well-substantiated theory. All we can offer is a tentative hypothesis. It is possible that the actual observation of prolapse of the uterus and of the symptoms of hysteria, which for ages have been ascribed to over-long virginity and to sterility, together with the thoughts naturally suggested by certain of the phenomena of sexual life, and the analogous superstition that the soul is a mannikin inhabiting the body, united to form the belief that sexual phenomena were the result of the actions of a small and lively animal inside the body of women. In the Malay Archipelago, and even, as I myself have heard, in Scotland, *sperma genitalia* is looked upon as the food of this animal, the absence of which will lead to female complaints of a hysterical nature. Whatever the origin of the belief may have been, however, there it was, and there is no doubt that out of it there sprouted up, in their turn, a further crop of superstitious notions and practices, several of which passed into orthodox medicine.

Hysterical attacks, as we have just seen, were quite plausibly ascribed to the vexation which the animal organ experienced when its desires were ignored, a vexation which made it restless and irritable and led it to forsake its normal situation and to wander about the body. In this way, we are told, when it reached the throat the patient experienced the feeling of a lump or a foreign body—the globus hystericus. As a consequence, the treatment of hysteria both in folk-medicine and in ancient regular medicine was based upon the animal theory. And, as we so often find in the other sections of bygone therapeutics, these particular methods survived by many centuries the belief which gave them birth, so that the pre-scientific treatment of hysteria retained the impress of the animal theory long after that theory as a serious proposition had been discarded from physiological teaching.

The nature and appearance of the animal uterus in folk-lore may first be described, and then I will sketch the course of the idea in medical history proper.

At the present day the folk-belief in the animal womb seems to be most strongly developed in Germany and in the Austrian Alps where the people refer the manifold symptoms of hysteria to *die Mutter* and where that complaint is known as *Mutterwuht* (a word analogous in every respect to the Greek hysteria, *ὑστέρα*), while the globus hystericus is popularly termed *Hebmutter*—the rising womb. Elsewhere in these parts similar ideas are prevalent, and everywhere we are told that these conditions are caused by the uterus biting, thumping, or, most generally, crawling about the unfortunate woman's interior and interfering seriously with her vital functions. As to the nutriment preferred by this animal, I have already offered some information, and the folk in Germany, like those of Scotland and Malaya, are quite blunt and out-spoken on the matter, as indeed was Actuarius among the ancients. But there are not rarely obvious disadvantages attaching to a recourse to this therapeutic procedure, and so several other devices are employed to satisfy the hungry creature and to induce it to settle down quietly in its own proper locality. According to Fossel, the Styrians concoct a mixture of horse-mint, spirits of hartshorn, nutmeg, and other odoriferous materials, which they place in a walnut shell and lay on the patient's navel, surrounding it with three lighted candles. In the Tyrol and in Bavaria waxen images of the organ are laid before the Virgin and the saints in the churches as "votive offerings," and from these images we discover that the uterus is an animal not unlike a frog, with short extended legs.

But the excursions of the organ are not always restricted to the confines of the individual's body. Sometimes it extends the circuit of its Odyssey, and, like the soul, wanders away from its owner altogether, slipping from her when she is asleep, to roam about the mountains or to bathe in the wells of the neighbourhood. If the uterus returns and finds the woman's mouth open, well and good; but—again, like the soul—if on its return her mouth is closed, then it cannot get back again, and the woman becomes barren. In these circumstances, the Transylvanian Saxons lure it back by reciting the following magical incantation:—

> "The *Mother* sat on a marble stone,
> There came to her an aged one.
> Little Mother! Where goest thou?
> I go to spy the blood of a wife,
> I go to tear her heart in two,
> I go to steal away her life.
> That little Mother, thou dar'st not do!
> Here on the marble fixt thou't be
> Lest the wood-wife wild devour thee
> And all in pieces tear thee.
> In the name of the Father, the Son, and the
> Holy Ghost."

The Livonians have similar cures for a restless womb. According to that people the normal position of the organ is

in a hollow on the left side behind the navel, and the playful fancy of the folk has furnished her with a little house, a golden bed, and a golden chain. Here she lies curled up like a kitten fast asleep. She is as sweet as honey, they say, white and round, and *quite tame*. But in spite of her home-comforts and gentle disposition the mother occasionally betrays a regrettable tendency to go off on long journeys, sometimes as far as the mountains even, and then she can only be recalled and induced to settle down again quietly at home by the recital of incantations such as "The Mother has gone away into the fields! Thy little children are weeping and crying for thee! Return to thy seat! Sleep in the bed, where Holy Mary, the Mother of Jesus, placed thee!"

We are frequently exercised in our minds to decide which of the two, a particular medical teaching or its related popular superstition, occupies the prior position in time. In the belief now under consideration the probability is that the folk-idea was the first, and, as I have already said, that the medicine of Greece and Rome obtained it from the current folk-belief of these countries.

In the writings of Plato the uterus is spoken of as an animal greedy of conception, so that if its appetite be not sated it manifests its displeasure by wandering up and down the body, whereby the movements of the vital spirits are obstructed, respiration is embarrassed, and numerous diseases are engendered.

In the book upon "Diseases of Women," sometimes ascribed to Hippocrates, but rejected as a genuine work of his by Francis Adams, we find the power of the uterus to change its situation described in such wise that, although it is not definitely called an animal, there can be no doubt that the writer was impelled to write as he did by the belief that it was so. The uterus is able, he says, to finds its way downwards to between the thighs (evidently prolapsus), or it may be found in the loins, in the flanks (floating kidney?), or at the hips; it may reach the liver or stomach, the ribs, and may even venture as far as the head.

Soranus seems to have been the first to combat this teaching, but all the same he followed the established methods of treating the complaints attributed to vagrancy of the womb. Galen also was strongly opposed to the animal theory, but the criticism of these authorities was not powerful enough to expel the idea from general medical thought, and it was firmly and clearly enunciated by Aretæus, whose descriptions of the internal wanderings of the uterus are characterised by the utmost definition and assuredness. After this time, however, the teaching seems gradually to have passed under an eclipse, although the treatment which was popularly based upon the animal theory persisted in the regular medical practice for several centuries.

We have already seen that in German folk-medicine the wandering womb was restored to her normal habitat by sweet-smelling substances, and this particular treatment of uterine complaints in general, including hysteria, was likewise the vogue in medical circles from the time when the Ebers papyrus was written until the rise of modern gynæcology, a period, that is to say, of something like 4000 years. The ancient medical practice differed from that of the folk-doctors of Styria, by whom the odoriferous articles were laid upon the umbilicus of the patient. The remedies as a rule were burned and the sweet-smelling vapour was conveyed into the vagina, but the rational basis for both methods of treatment is the same.

It would take us beyond the limits of our subject to enter fully into the reasons which led the ancients and still lead the folk to resort to fumigation in the treatment of disease in general. I must therefore content myself with laying down the bald statement that my own opinion is that in the first instance the motive which led to fumigation was the simple idea of replacing a foul odour by one that was pleasant, an idea which, indeed, has not yet disappeared from popular opinion. For this reason, therefore, we may suppose that fumigation was first employed in uterine diseases with the object of combating the fœtor that sometimes characterises vaginal discharges. Having originated in some such manner then this therapeutic method was extended to those diseases or complaints which, though not characterised by any offensive discharge, had come to be associated with the uterus In this way fumigation became the accepted method of combating hysteria and all other kinds of uterine disorders. The ancient statement that fumigation was resorted to because the uterus-animal had a fondness for pleasant odours, therefore, may be looked upon as being to some extent one of that classes of excuses which folk-lorists have termed "etiological myths."

The earliest instance of the use of fumigation for vagrancy of the womb occurs in the Ebers papyrus. The reference runs as follows: "Remedies to induce the womb to return to her place: Chips of cedar-wood in a plate and on *Hefe*. Let your patient sit thereon," and "put an Ibis of wax upon coals and lead the smoke therefrom into the genital organs."

Paulus Ægineta, in his directions for treating "uterine suffocation" or the "hysterical convulsion," recommends: In order to draw back the uterus to its place "the injection of fragrant ointments" such as those made of marjoram and "Indian leaf." And in company with the other ancients he ordered that "things of a strongly fœtid smell are to be applied to the nose, such as an extinguished lamp, castor, liquid pitch, gum, vernix, burnt wool or rags." "Some," he adds, "have even brought close to the nose a chamber-pot containing stale urine or fæces." The undoubted efficacy of some of these unpleasant remedies in hysterical fits cannot but have supported the belief that the womb was an animal which loved sweet smells and fled from offensive odours.

In the list of remedies the presence of castor is to be noted, and in his commentary upon this section Adams remarks that according to Herodotus the ancient Scythians used castor for the cure of uterine complaints. Castor in the form of a tincture is, as everybody knows, still frequently employed as an antispasmodic, but those who prescribe it little imagine that its action, in the eyes of our medical predecessors, consisted in its driving the vagrant womb back into the pelvis.

The animal theory of the constitution of the uterus may have lingered on in the fanciful nonsense that passed muster for anatomy and physiology in the early Middle Ages, but it ultimately died out. The following quotation from a seventeenth century dispensatory, for example, shows that the European physicians at that time, no less than those of ancient Egypt, sought to restore the displaced womb to its normal condition by pleasant perfumes introduced into the vagina by fumigation or on pessaries: "*Hysteric Passion*. Some greatly recommend fumigations for the uterus of Musk, Civet, Storax and Benjamin" (or, as we say nowadays, *benzoin*).

Thus the treatment of hysteria by pungent appeals to the senses of the patient begins in the endeavour to neutralise unpleasant smells. Then it passes through a phase in which it purports to support and be supported by an absurd superstition which thereby found its way into the sober counsels of medicine. Finally, shorn of its absurdities, and in the class of remedies which we call antispasmodics, it finds at last a permanent place in the pharmacopœias of modern science.

This chequered history is by no means unique. There are many other trusted remedies which have had careers equally curious.

MOTORING NOTES.

BY C. T. W. HIRSCH, M.R.C.S. ENG., L.R.C.P. LOND.

Motor-car Licences.

THE attention of medical practitioners keeping motor-cars for the purpose of their profession is drawn to the fact that although the new rate of duty payable on a car may be the same as that paid on the existing licence, the form of declaration for use by medical men employing motor-cars, which can be obtained now at any post-office (Form No. 1A), must be filled up and forwarded with the old licence to the local authority for exchange, as all motor-car licences now held ceased to have effect on June 30th, 1910. In order to obtain the rebate on the licence allowed to the medical profession the certificate on the form must be signed by an authorised representative of the local authority. In the case of those residing in the County of London the declaration should be forwarded to the Comptroller, London County Council, 23, Cockspur-street, London, S.W., together with the additional duty, if any. The new licence will then be forwarded, and the amount, if any, by which the sum paid for the old licence exceeds the sum payable for the new will be returned. If preferred the new licence may be obtained at any postal money order office, but in that case the certificate provided for on the special form of declaration

must be obtained from the local county council authority for presentation at the postal money order office.

A Cure for Platinum Point Pitting on Trembler Coils.

Those who own cars with accumulator and trembler coil ignition have probably learnt the initial "tip" to look to the platinum points on the trembler of the coil if the engine pulls up suddenly. True, this is not much trouble, though some find dressing the two bits of platinum so as to be true with one another rather a fiddling job. Those who have done this will have noticed that the points wear similar to the carbons of an electric lamp—one becomes convex, the other concave. This fact, I presume, suggested to Messrs. Lodge Brothers of New-street, Birmingham, the idea of their patent automatic switch, by means of which each time the current is switched on its direction is automatically reversed. Thus the pitting action cannot take place on the platinum points for a sufficient period to have any susceptible effect, and the trouble and expense of filing are done away with. The automatic reversing switch will therefore be found to be a useful and economical fitting on all cars using trembler coils. By its means also either one or two accumulators may be placed in circuit, and the possibility of being able to bring two into use is of advantage in the event of both accumulators being partly run down.

Some Good Plugs.

Messrs. Lodge Brothers have also introduced a sparking plug which certainly has an air of solidity about it. The body is of steel, which stands the continual use of a spanner considerably better than brass. The porcelain is very solid, and is held firmly in place, with due allowance for expansion and contraction. It has three sparking points of pure nickel, and the spark is brought well into the mixture to be ignited. The Bosch Magneto Company, of Newman-street, London, W., have a plug fitted with either two or four electrodes. It consists of the usual central insulated pin, and the electrodes are fitted into the rim of the plug, with the other ends pointing towards the centre pin. One of the best known and most popular plugs is the "Poignon," a plug introduced by Messrs. Hobson, of Vauxhall Bridge-road, London; the porcelain is substantial and has been tested to a very high degree of heat, and even with a perfect compression they do not leak. Among other reliable makes are the Aimia, sold by the Abolo Company, of 133, Regent-street, London, and the E.I.C. plug, sold by the Electric Ignition Company of Birmingham. The particular features to see to in all plugs are that the central electrode is insulated and not shorting through a layer of burnt oil; also that the points are the correct distance apart—about 1-20th of an inch is a satisfactory gap, though with a run-down accumulator it is possible to reach home by approximating them a little more. It is less trouble to clean a plug at home than on the road, so it is a good plan to always carry a spare one, with the usual copper asbestos washer; and though a large number are said to be proof against over-lubrication, still it is no advantage to the engine to test this statement.

Foot Starting.

One of the few points which can be raised against a modern car where the doctor drives himself is that it is not quite compatible with one's dignity to have to go in front, on leaving a patient's house, to crank the starting lever round. Of course, with the Bosch dual ignition, if the halt has not been longer than for the usual quarter of an hour, pressing the button will generally put the engine in action. For those who have not the dual ignition fitted, and even for those who have and want to be sure to get away without pulling the handle round, Messrs. Duff Morgan and Vermont of Dover-street, Piccadilly, have introduced a foot starting device. This consists of a ratchet wheel fixed to the clutch shaft of the car and operated from above the food board by a press down pedal, the connexion being through a pivoted bar with notches, so that when the contrivance is out of action the pedal is down and the pawl out of gear. This method has been subjected to a Royal Automobile Club trial, and the certificate awarded states that "the car started from cold within five seconds, and after the second depression of the starting pedal it was driven for nearly three hours in London traffic, during which time nine stops were made. On six occasions one depression of the pedal brought the engine into action, on the other tests two, three, and four depressions were respectively needed." These results, I think, show that the device is a practical one and worthy the consideration of those who like to jump in their car and get away at once by means of merely pressing a pedal.

The Question of Licences to Drive.

At a recent inquest at Warrington the driver of a car which had run over a child was exonerated from all blame, but it came out that he had only been licensed to drive a car since June—a fact which led to some remarks condemnatory of the system under which licences can be obtained.

THE ORDER OF THE HOSPITAL OF ST. JOHN OF JERUSALEM IN ENGLAND.

IN most of the obituary notices of Miss Florence Nightingale it has been mentioned that, on her eighty-fourth birthday, the King conferred upon her the dignity of a Lady of Grace of the Order of St. John of Jerusalem in England; and the *London Gazette* frequently contains announcements of appointments to or of promotions in the Order, to which the Royal sanction has been given, and which, in a large proportion of the cases, refer to members of the medical profession. In these circumstances, and in view of the fact that the character and composition of the Order do not appear to be always very clearly understood, some account of its origin and history may perhaps be acceptable to our readers.

Origin and History of the Order.

From the time when Jerusalem first became a recognised place of pilgrimage for European Christians, some attempts had been made both to afford these pilgrims shelter and hospitality upon their arrival and also to protect them against some of the perils of the journey; attempts which were systematised by a body of merchants from Amalfi, who established an organisation for the purpose, and placed it under one Gerard as Master. Such was the situation as it existed prior to the formation of the kingdom of Jerusalem in 1099. Between that time and the middle of the twelfth century the Order, under Raymond du Puy, had built a hospice and two Christian churches in Jerusalem; and in 1118 Baldwin II., the then Latin King of Jerusalem, determined to confer the character of a military knighthood upon the Order, an example which was followed in the case of the Templars in 1130. Under its new organisation the Order was divided into three classes, first of whom in rank and position were the Knights of Justice. Admission to this grade was only given to those who could produce satisfactory proofs of the nobility of their descent; and every candidate was required to have received the accolade of knighthood from secular hands before he could be enrolled. The second class comprised the strictly ecclesiastical portion of the convent, and was eventually divided into two distinct grades, the Conventual Chaplains, who performed the religious functions of the Order at headquarters, and the Priests of Obedience, who carried on similar duties in other priories and commanderies of the Order throughout Europe. The third class were denominated Serving Brothers, and were again divided into two grades, the Servants at Arms, or Esquires, and the Servants at Office. The Servants at Arms performed the duties of Esquires under the Knights of Justice, and, if they were eligible, became in due time enrolled among their number. The Servants at Office were men of a lower class in life, who acted as domestics within the convent and hospital. This class, though wanting the position and dignity of their nobler brethren, possessed numerous privileges and emoluments which rendered admission into the Order, even in this grade, very advantageous to men of the humbler ranks of society. Ladies were first enrolled in the year 1259, and took their full share in the charitable work, soon rivalling in zeal the most earnest of the brethren.

Under this organisation the Knights Hospitallers, as they were commonly called, coöperated for many years with the Knights Templars in the defence of Jerusalem and of the Holy Land against the Saracens; although the two Orders were frequently hostile to each other at times when they were not compelled to turn their swords against the common enemy. In the beginning of the fourteenth century, the

Order of St. John, which had previously been a cosmopolitan brotherhood embracing all Christendom, was divided into the seven nations or tongues (*langues*) of Provence, Auvergne, France, Italy, Aragon, England, and Germany; and to these seven an eighth was subsequently added, in order to increase the influence of Spain in the general body. The *langue* of Aragon was divided, the new portion taking the title of the *langue* of Castile, and embracing Portugal. Under the new conditions, each *langue* became a semi-independent body, owing allegiance to the sovereign of the territory from which it was derived, and governed by a Grand Prior of its own election; while the Order as a whole was governed by a Grand Master, who could only be elected at a Chapter at which all the *langues* were represented. When the Order was finally driven from Jerusalem by the Saracens, its headquarters were successively established at Acre, at Cyprus, at Rhodes, and finally at Malta, where its sovereignty was recognised by the great Powers; and for some centuries it successfully held the Mediterranean against the Turks. On the death of Grand Master de Rohan, in 1796, Ferdinand von Hompesch, a Knight of the German *langue*, was elected as his successor, and soon showed that he possessed neither the ability nor the determination necessary for the post. In 1798 Napoleon, on his expedition to Egypt, landed a portion of his army in Malta; and, after three days of negotiation, Valetta was surrendered to him, and the sovereignty of the Order came to an end. A portion of the Knights took refuge in Italy, where they claimed to be not merely the Italian *langue*, but the Order; a claim which has never been recognised by the other *langues*, so that no Grand Master has subsequently been elected. An attempt was made by two successive Czars to occupy a position of general patronage to a revived Order, but nothing came of it, and the *langues* which still exist have become purely national institutions in their respective countries. That of Germany, for instance, flourishes under Imperial patronage as the "Johanniter," and its Grand Master, Prince Albert of Prussia, is an honorary Knight of Justice in England.

That the official name of the Order in England in the time of King Edward III. was the Order of St. John of Jerusalem in England is rendered clear by official records of proceedings in the law courts. These proceedings were consequent upon the granting to the Order of St. John of Jerusalem of the properties in England of the Knights Templars. In some instances these properties had passed into other hands, and the Order was obliged to take proceedings for their recovery. There is also some indication that at first the Prior was not familiar with the English legal title of the Order, for he questioned whether the whole of the property was not vested in him by virtue of his being the Lord Prior, but the Courts decided that the property was vested in the corporation styled the Order of the Hospital of St. John of Jerusalem in England, or shortly the Order of St. John of Jerusalem in England.

The result of this was that, as far as England and English laws were concerned, the Order in England bore the same name in England that it bears now. And a further result was that when, at the time of the dissolution of the monasteries, King Henry VIII. found that the Order, while acknowledging the King's supremacy in every matter connected with the tenure of land, and the duties consequent thereon, was still yielding allegiance in spiritual matters to the Pope, and when he consequently determined upon its dissolution, he could not dissolve the Order of St. John of Jerusalem, which was an international corporation created by Baldwin, King of Jerusalem, and had an international existence, but he could and did dissolve the English corporation of the Order of St. John of Jerusalem in England. This corporation, under the same name, was reconstituted by Royal Charter in the time of Queen Mary; and it is interesting to remark that upon that occasion, although the more general corporation still existed in its international character, a certain number of Knights, members of it, applied for and obtained a Royal Charter reconstituting them and their successors as the Order of St. John of Jerusalem in England.

In the reign of Queen Elizabeth the property of the Order in England was again confiscated, but nothing was done to take away the Charter, and there is some evidence that members of the English Order still continued to occupy in Malta the places which had appertained to the Order when in England. As a fact, the Charter granted by Queen Mary was never annulled, and matters remained in abeyance, as far as England was concerned, until after the extinction of the original Order by the surrender of Malta. Some 20 years later an attempt was made to reconstitute the Order as a whole, in consequence of the massacre by the Turks of the Christian inhabitants of Scio; and the documents relating to this attempt show that, although a complete Chapter of the Order could not be summoned, there was then in France the Venerable Ordinary Council of the Order, in which were represented sufficient of the *langues* to carry by a majority of the Chapter, had it been possible to summon one, any determination at which the Venerable Council might arrive. In these circumstances, the Venerable Council decided to re-establish the English branch of the Order, and also that its members might be members of the Anglican Church. Hereupon meetings of English Knights were held; and the Rev. Sir Robert Peat having been elected Grand Prior, he, in 1834, acting under the advice of Vice-Chancellor Sir Launcelot Shadwell, presented himself before the Court of King's Bench, and took before Lord Chief Justice Denman certain oaths which were required by the Charter of Queen Mary. But the revolution in France again dispersed the Knights, and a small fraction of them who had taken up their residence in Rome declined to acknowledge the action of the Venerable Ordinary Council, and have never accepted the reconstituted English branch of the Order. This, notwithstanding, continued to exist; probably, as far as English law is concerned, as a voluntary institution; but, as far as the Order is concerned, representing at least as much legal authority as that which has been claimed by the Roman Catholic Order, then and since. But in England, or in the British Empire, the question was set at rest in 1888 by the grant of a new Charter by Queen Victoria, giving the Order a status and constitution based upon the Charter of Queen Mary. This last Charter has fully revived the mediæval Corporation of the Order of the Hospital of St. John of Jerusalem in England, which was recognised as the English Order from the time of King Edward II. to that of King Henry VIII. The Charter preserves the name which the Knights bore in the time of King Henry VIII.—namely, Knights of the Order instead of Knights of the Kingdom; and the links with the past have been further strengthened by the acquisition by the English Order of buildings at St. John's Gate which formed part of the principal home of the English *langue*, and of the advowson of the old Church of the Order in Clerkenwell.

Development of the Ambulance Branch.

The chief merit of raising the Order in England from the status of a private society to that of an Imperial Institution should undoubtedly be given to the late Sir Edmund Anthony Harley Lechmere, Bart., M.P., who became a Knight of the Order in 1865, and was appointed its secretary in 1867. In conjunction with the late Sir Edward Perrott, Sir Vincent Kennett Barrington, and Colonel Duncan, M.P., and with Sir John Furley, still happily surviving and active, Sir Edmund Lechmere inaugurated that system of training bodies of men to render first aid to the wounded which has now extended to all parts of the Empire, and which, during the recent war in South Africa, enabled the Ambulance branch of the Order to supply 1500 trained bearers to the imperial forces, and thus permitted the Royal Army Medical Corps to cope successfully with an amount of work under which their own *personnel* would have been hopelessly overwhelmed. The St. John Ambulance Association, as this branch of the work of the Order is called, has also given instruction in first aid and in the conveyance of the sick or wounded to thousands of men engaged in dangerous occupations, or likely to be brought into contact with accident, such as railway makers and servants, miners, policemen, sailors, engineers, and many others, as well as to great numbers of the public. As one consequence of the general diffusion of such teaching the risks to which injured persons are exposed have been very materially diminished; and both in the metropolis and in provincial towns every occasion which brings together multitudes of people brings out also the local organisation of the Order, with its staff of nurses and bearers, upon whom it is common for the care of the subjects of numerous accidents to devolve. This branch of the organisation has of late years been mainly developed under the Secretariat

of Colonel Sir Herbert Perrott, son and successor of the Sir Edward Perrott mentioned above.

The instruction in first aid, which is thus one of the most important works of the Order, and which is carried on not only at home, but in all, or nearly all, of the colonies and dependencies of the Empire, has only been rendered possible by the hearty coöperation of the medical profession, the members of which have shown, generally speaking, the greatest readiness to undertake that teaching of classes for the purpose which is now conducted in a large number of centres; and this readiness has in many cases been recognised by the bestowal of the Honorary Associateship of the Order, or by the selection of practitioners who were already Honorary Associates to be Knights of Grace. Among the latter, for example, may be mentioned such conspicuous physicians and surgeons as Sir Dyce Duckworth, Dr. W. Bezly Thorne, Sir R. Douglas Powell, Mr. Edmund Owen, Sir Frederick Treves, Sir Alfred D. Fripp, Sir William H. Bennett, Dr. F. M. Sandwith, Sir Arthur Conan Doyle, a large number of men of highest rank in the Naval Medical Service and in the Royal Army Medical Corps, and many others. But the Order is also largely recruited from other callings, and, as at present constituted, includes some 50 Knights and 50 Ladies of Justice, over 200 Knights and about 100 Ladies of Grace, over 50 Esquires, a large number of honorary serving brothers and serving sisters, and about 300 honorary Associates, nearly all of whom are more or less actively engaged in the promotion of its work. Besides the ambulance branch, the Order maintains an Eye Hospital at Jerusalem which owes its foundation to Sir Edmund Lechmere, and which for many years has rendered admirable service; and it has an almoners' branch which carries aid to the families of hospital patients and to many other poor and deserving people. It also awards medals and certificates to persons who have saved or endeavoured to save life at imminent peril to themselves, and these certificates are annually given to the recipients by the Grand Prior, or, in India or the Colonies, by the local representative of the Sovereign.

The Charter of 1888.

Under the Charter of 1888 the reigning Sovereign is also the Sovereign Head and Patron of the Order, without whose approval no appointment or promotion in it can be made, and by whom the Grand Prior is nominated. This office, from the date of the Charter to the accession of King George, was held by the Prince of Wales; but King George, presumably on account of the Prince's youth, nominated the Duke of Connaught to the vacancy occasioned by his own accession. A large number of members of the Royal Family are Knights or Ladies of Justice of the Order, and on many occasions have taken part in its ceremonies, or have given to the successful candidates the prizes awarded under its competitions. The Members and Associates have decorations corresponding with their rank in the Order, and these are worn at Court, in uniform, or on other suitable occasions, in a manner prescribed by the King's regulations on such subjects, while all appointments or promotions in the Order, after having been approved by the Sovereign, are published in the *London Gazette* by Royal authority.

A Knight of Grace, an Esquire, or an Honorary Associate of the Order is required by the regulations to be "of sufficient social position," and for a Knight of Justice the original genealogical qualification is, as a rule, maintained. But this qualification is not required in any case in which promotion to the grade is made in obedience to a Royal mandate, or in which the candidate is already a Knight Grand Cross of the Bath, or of one of the other principal Orders of Knighthood. The Knights of Justice have the privilege of bearing the arms of the Order in augmentation of their own, much as baronets bear the red hand of Ulster.

THE MANCHESTER MEDICAL SOCIETY.—Mr. C. B. Lockwood will deliver an address on the subject of Inflammation and its Relationship to Malignant Disease at the opening meeting of the session 1910–11 of the Manchester Medical Society. The meeting will be held in the Medical School of the Manchester University on Wednesday, Oct. 5th, at 8.30 P.M.

Public Health.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

The City of Manchester.—The estimated population of Manchester for the year 1909 was 654,584, and of these 313,889 were males and 340,695 females. The birth-rate was 27·52 and the death-rate 17·70 per 1000, the infantile mortality, 135·6 per 1000 births, being low, as in the country as a whole. The percentage of deaths occurring in public institutions showed a marked increase, a circumstance which Dr. James Niven regards as undoubtedly due to the distress prevailing during 1909, and not presumably to the increased popularity of these institutions. As regards death-rates from epidemic diseases, Manchester does not, except in the case of scarlet fever and measles, occupy a very unfavourable position, and it is thought that the insufficiency of accommodation for scarlet fever explains the rise in the death-rate from that disease. This is an interesting explanation. Dr. J. R. Hutchinson, dealing with the prevalence of enteric fever in the city, reports that the experience of Manchester shows that no inconsiderable number of cases is caused by shell-fish, that a good investigation can discover the infecting source in a very large number of instances, and that overlooked cases, especially amongst children, are responsible for many "subsequent" ones. The effect of the occupation of the mother upon the health of her infant was investigated in the Ancoats division of Manchester during 1909, in common with similar inquiries carried out by the Home Office in certain other large towns. One of the more interesting points brought out was the large number of deaths which occurred amongst the infants of mothers who had not worked during the year before or after birth or who had worked before and not after birth. The explanation offered is that these were enfeebled mothers who had become unfit both for work and the production of healthy offspring. The inquiry, so far as it goes, brings out other interesting points which are difficult to summarise, and one of the conclusions arrived at is that the industrial occupation of mothers is decidedly injurious to their infants. This does not seem quite to agree with the experience of Birmingham. It is clearly necessary to bear in mind in all investigations of this character that the mothers who work are likely to be superior constitutionally, amongst the poorer classes at all events, to those who do not work, and unless this fact be accorded due weight some very misleading conclusions may be reached.

An increase is recorded in the aggregate death-rate from tuberculous phthisis in Manchester. This is due in large measure to the immigration of paupers from outside districts, who were admitted in exceptional numbers to the union hospital and who died there. As in past years a considerable portion of this report is devoted to the subject of pulmonary tuberculosis, and a detailed report on the measures locally needed for its prevention is appended. The voluntary notification of tuberculous phthisis was adopted in the year 1899, and since that time a decided fall in the death-rate therefrom has been observed, more especially in that portion of the community which has availed itself of the instruction proffered by the sanitary authorities. The influence of poverty in the production of tuberculosis, as well as that of pulmonary tuberculosis in the production of poverty, has become increasingly manifest in recent years. Both in its origin and in its progress tuberculous disease is powerfully influenced by malnutrition, and the spread of infection in a family is encouraged by poverty. Speaking generally, the working classes in Lancashire live from hand to mouth; consequently, when the breadwinners become incapacitated by phthisis the family resources rapidly sink to the vanishing point. From a calculation furnished to the medical officer by Mr. E. Lock it appears that in the year 1909 the loss of wages due to phthisis was not less than £48,000 in Manchester alone, and was probably much more than this. The number of deaths annually ascribed to phthisis exceeds 1000; and, on the assumption that on the average the patients are infective for three years before death, there exist not fewer than 3000 infectious cases constantly requiring supervision. Besides these there are probably at least 1000 cases, mostly

children, suffering from tuberculous disease of the bowels, kidneys, and glands, all of which are more or less infective. Although the number cannot be exactly determined, it may be estimated that the total number of sufferers from tuberculosis other than pulmonary falls little short of 4000. The chief reduction in mortality from tuberculous phthisis has occurred at ages between 15 and 65; among boys under 15 there has been no reduction whatever. Since 1899 tuberculous affections in children have diminished much more rapidly than has tuberculous phthisis—a circumstance which may be partly due to the operation of the milk clauses of the Manchester General Powers Act of that year. Most of the infection of children is probably caused by contact with cases of phthisis, and any improvement that has occurred may be assigned to the instructions given to families under the system of voluntary notification now in vogue. The class of persons frequenting common lodging-houses has not experienced any mitigation in the loss of life from this scourge. Dr. Niven insists that, in order to obtain satisfactory control over the ravages of the disease, compulsory notification of tuberculous phthisis is indispensable. In addition to this he regards it as important that the authorities of union hospitals should be required under statute to retain under medical treatment all phthisical paupers until their discharge is free from danger to others. He further is of opinion that poor phthisical persons should be prohibited from wandering from place to place or from one lodging to another.

In order to supervise the milk-supply of Manchester and to administer the provisions of the local Act of 1899, to which we have referred, Mr. J. W. Brittlebank, M.R.C.V.S., has been appointed, and his report is appended. The milch cows in the city byres, some 2000 in number, have been kept under constant supervision throughout the year, and the policy has been maintained of peremptorily excluding aged cows from the city cowsheds. Only one cow was detected to be suffering from tuberculosis of the udder, and it was promptly destroyed. Under the milk clauses of the Act samples of milk are obtained at the Manchester railway stations and immediately submitted to Professor Sheridan Delépine for examination. All samples found to cause tuberculosis are followed to their source at the farm by the medical officer of health and the veterinary surgeon. In the course of last year 645 samples of milk were examined, and of these 5·79 per cent. were found to be infective. As many as 535 farms, feeding in the aggregate 9000 cows, are concerned in supplying milk to Manchester from outside areas. Very encouraging are the results of applying the tuberculin test for keeping a large herd of milch cows free from tuberculosis. In Manchester the hospitals at Monsal, Clayton, and Baguley have for four years past been supplied with milk from that herd, and Mr. Brittlebank reports that in this period not a single animal has reacted to tuberculin. The complete success of this experiment should undoubtedly lead to the general practice of rearing stock from tubercle-free animals.

Under the head of infantile mortality the report gives an instructive account of the preventive action still carried on by the Ladies' Health Society, and reference is made to the investigation concerning the industrial employment of mothers carried out in Ancoats at the instance of the Home Office. Good work is being done in Manchester under the Midwives Acts. The report of the executive officer, Dr. Margaret M. Smith, has just been issued; it summarises the work done by the midwives supervision committee in the year 1909. *Inter alia*, the consent of the Local Government Board has been obtained for the inclusion of ophthalmia neonatorum among the infectious diseases to which the Notification Acts apply. Under the direction of the medical officer of health circulars have been issued to monthly nurses containing instructions on the care of women in childbirth. These have been highly appreciated by the nurses and, it is believed, have had happiest results to the patients. The education of midwives which has taken place under the Act has brought about a more careful habit of work and a higher standard of their responsibility towards the patients. The very poor lying-in women in the city are now sure of skilled care and attendance from the midwives working directly in connexion with St. Mary's Hospitals. The poorest of these who require gratuitous medical aid at the time of labour have the medical man's fee paid by the corporation after due inquiry. In some districts schools for mothers are established, where pregnant women and nursing mothers can obtain meals at a very small charge, as well as instruction in the care of infants. The whole report is one of progress in various sanitary and humane directions.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 77 of the largest English towns 7577 births and 4085 deaths were registered during the week ending Sept. 17th. The annual rate of mortality in these towns, which had been 12·1 and 11·7 per 1000 in the two preceding weeks, rose again last week to 12·6 per 1000. During the first 11 weeks of the current quarter the death-rate in these towns averaged 11·5 per 1000, and in London during the same period the death-rate, calculated on the probably over-estimated population, did not exceed 10·7 per 1000. The lowest reported annual death-rates in these 77 towns last week were 3 2 in Hornsey, 5·0 in Willesden and in Handsworth (Staffs), 5·9 in West Bromwich, and 6·0 in Aston Manor; the rates in the other towns ranged upwards to 17·5 in Grimsby and in Hull, 17·6 in Stoke-on-Trent, 17·7 in Bootle, 18·5 in Liverpool, 21·9 in Middlesbrough, and 23·1 in Tynemouth. In London last week the reported death-rate did not exceed 12·2 per 1000. The 4085 deaths registered in the 77 towns last week showed an increase of 290 over the number in the previous week, and included 643 which were referred to the principal epidemic diseases, against 720, 703, and 623 in the three preceding weeks; of these 643 deaths, 476 resulted from diarrhœa, 56 from whooping cough, 52 from measles, 22 from enteric fever, 19 from diphtheria, and 18 from scarlet fever, but not any from small-pox. The mean annual rate of mortality from these diseases in the 77 towns last week was 2·0 per 1000, against 2·2 and 1 9 in the two preceding weeks. No death from any of these epidemic diseases was registered last week in Tottenham, Derby, Reading, Newport (Mon.), Merthyr Tydfil, Smethwick, Handsworth (Staffs), Burton-on-Trent, or Dewsbury; the annual death-rates therefrom ranged upwards, however, to 4·1 in Barrow-in-Furness, 4·4 in Bury, in Burnley, and in South Shields, 5·9 in Bootle, 6·1 in Hull, and 7·8 in Middlesbrough. The deaths attributed to diarrhœa in the 77 towns, which had been 516, 527, and 465 in the three preceding weeks, rose again to 476 in the week under notice, and caused death-rates ranging upwards to 3·0 in Rhondda, 3·3 in Sheffield, 3·5 in South Shields, 3·9 in Stockton-on-Tees, 4·4 in Bury, 5 2 in Bootle, 5·6 in Hull, and 7·3 in Middlesbrough. The fatal cases of whooping-cough, which had declined from 79 to 50 in the five preceding weeks, rose again last week to 56, the highest death-rates from this disease being 1·2 in King's Norton, 1·3 in Coventry, and 1·9 in Great Yarmouth. The deaths from measles, which had been 77, 68, and 51 in the three preceding weeks, were 52 in the week under notice, the greatest proportional mortality from this cause being 2·5 in Barrow-in-Furness. The 22 fatal cases of enteric fever showed an increase of 10 over the number in the preceding week; of these 22 deaths, 6 occurred in London and 2 in St Helens. The deaths from diphtheria, which had been 16 and 28 in the two preceding weeks, declined again to 19 last week, and included 5 in London, and 2 each in Manchester, Salford, and Rhondda. The fatal cases of scarlet fever, which had been 18 and 17 in the two preceding weeks, were again 18 in the week under notice; 6 were registered in Liverpool, 4 in London, 2 in Stoke-on-Trent, and 2 in Hull. The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had been 1447, 1455, and 1462 at the end of the three preceding weeks, had further risen to 1509 at the end of the week under notice; 201 new cases were admitted during the week, against 183 in each of the two preceding weeks. The 1140 deaths from all causes in London last week included 120 which were referred to pneumonia and other diseases of the respiratory system, showing a slight increase over the numbers in the two previous weeks, and being nearly equal to the corrected average number in the corresponding week of the five years 1905–09. The causes of 31, or 0 8 per cent., of the deaths registered during the week in the 77 towns were not certified either by a registered medical practitioner or by a

coroner. All the causes of death were duly certified in London, Leeds, Sheffield, Bristol, West Ham, Nottingham, Leicester, Salford, and in 51 other smaller towns; the 31 uncertified causes of death in the 77 towns included 6 in Birmingham, 5 in Liverpool, and 2 each in Blackburn, Preston, Huddersfield, and Hull.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns 785 births and 473 deaths were registered during the week ending Sept. 17th. The annual rate of mortality in these towns, which had been 13·6, 13·3, and 13·0 per 1000 in the three preceding weeks, was again 13·0 last week. During the first 11 weeks of the current quarter the death-rate in these towns averaged 12·8 per 1000, and exceeded by 1·3 the mean rate during the same period in the 77 largest English towns. The annual death-rates in the week under notice in the eight Scotch towns ranged from 7·8 in Leith and 11·7 in Edinburgh to 15·4 in Perth and 16·2 in Dundee. The 473 deaths from all causes in the eight towns last week were exactly equal to the number in the preceding week, and included 78 which were referred to the principal epidemic diseases, against 93 and 69 in the two preceding weeks; of these 78 deaths, 45 resulted from diarrhœa, 13 from whooping-cough, 10 from diphtheria, 6 from scarlet fever, and 4 from enteric fever, but not any from measles or from small-pox. The mean annual rate of mortality from these epidemic diseases in the eight towns last week was equal to 2·2 per 1000, the rate from the same diseases in the 77 English towns being 2·0 per 1000. The deaths attributed to diarrhœa in the Scotch towns, which had been 68 and 51 in the two preceding weeks, further fell last week to 45, of which 25 occurred in Glasgow, 10 in Dundee, 6 in Edinburgh, 2 in Aberdeen, and 2 in Paisley. The fatal cases of whooping-cough, which had been 10 and 8 in the two previous weeks, rose again to 13 in the week under notice, and included 9 in Glasgow and 2 in Greenock. The deaths from diphtheria, which had been 6, 7, and 5 in the three preceding weeks, increased last week to 10, of which 3 were registered in Glasgow, 2 in Edinburgh, 2 in Dundee, and 2 in Aberdeen. The 6 fatal cases of scarlet fever exceeded by 3 the number in the previous week, and included 4 in Glasgow, where 3 of the 4 deaths from enteric fever also were registered. The deaths referred to diseases of the respiratory system in the eight towns, which had been 49, 47, and 42 in the three preceding weeks, rose again to 58 in the week under notice, and were 17 in excess of the number in the corresponding week of last year. The causes of 12, or 2·5 per cent., of the deaths in the eight towns last week were not certified; in the 77 English towns the proportion of uncertified causes of death did not exceed 0·8 per cent.

HEALTH OF IRISH TOWNS.

In 22 town districts of Ireland, having an estimated population of 1,151,790 persons, 713 births and 375 deaths were registered during the week ending Sept. 17th. The mean annual rate of mortality in these towns, which had been 17·1, 15·2, and 15 1 per 1000 in the three preceding weeks, rose again to 17·0 in the week under notice. During the first 11 weeks of the current quarter the annual death-rate in these Irish towns averaged 16·1 per 1000; the mean rate during the same period did not exceed 11·5 in the 77 largest English towns and 12·8 in the eight principal Scotch towns. The annual death-rate during last week was equal to 18·8 in Dublin, 15·5 in Belfast, 14·4 in Cork, 18·0 in Londonderry, 9 6 in Limerick, and 19·5 in Waterford; the mean annual death-rate last week in the 16 smallest of these Irish towns was 18·9 per 1000. The 375 deaths from all causes in the 22 town districts last week were 41 in excess of the number in the previous week, and included 61 which were referred to the principal epidemic diseases, against 74, 47, and 43 in the three preceding weeks; these 61 deaths were equal to an annual rate of 2·8 per 1000, the rate from the same diseases being 2·0 in the 77 English towns, and 2·2 in the eight Scotch towns. The 61 deaths from these epidemic diseases in the Irish towns last week included 48 from diarrhœa, 4 from diphtheria, 3 from whooping-cough, 2 from scarlet fever, 2 from enteric fever, 1 from measles, and 1 from typhus fever, but not any from small-pox. The deaths attributed to diarrhœa, which had been 54, 39, and 33 in the three preceding weeks, rose again to 48 in the week under notice, and included 21 in Dublin, 15 in Belfast, 3 in Cork, 2 in Waterford, and 2 in Tralee. Two deaths from scarlet fever, 2 from whooping-cough, and 2 from diphtheria were registered in Dublin. The deaths in the 22 towns last week included 47 which were referred to pneumonia and other diseases of the respiratory system, against 50, 40, and 38 in the three preceding weeks. The causes of 13, or 3·5 per cent., of the deaths registered last week in the Irish towns were not certified; in the 77 English towns the proportion of uncertified deaths last week did not exceed 0·8 per cent., while it was equal to 2·5 per cent. in the eight Scotch towns.

VITAL STATISTICS OF LONDON DURING AUGUST, 1910.

In the accompanying table will be found summarised complete statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious diseases, it appears that the number of persons reported to be suffering from one or other of the nine diseases specified in the table was equal to an annual rate of 3·9 per 1000 of the population, estimated at 4,872,702 persons in the middle of the year. In the three preceding months the rates were 3·9, 4·0, and 4·1 per 1000 respectively. The lowest rates last month were recorded in Kensington, Chelsea, the City of Westminster, Hampstead, and Camberwell; and the highest rates in the City of London, Finsbury, Shoreditch, Bethnal Green, Stepney, Poplar, Southwark, Bermondsey, and Woolwich. No case of small-pox was notified during the month. Scarlet fever was less prevalent in August than in any previous month of the current year; among the several boroughs the greatest proportional prevalence of this disease was recorded in Hammersmith, Bethnal Green, Poplar, Bermondsey, Lambeth, and Woolwich. The Metropolitan Asylums Hospitals contained 1439 scarlet fever patients at the end of the month, against 1358 and 1530 at the end of the two preceding months; the weekly admissions averaged 160, against 180 and 190 in the two preceding months. The prevalence of diphtheria showed a decline from that recorded in the previous month; this disease was proportionally most prevalent in Fulham, Finsbury, the City of London, Bethnal Green, Southwark, Bermondsey, and Greenwich. The number of diphtheria patients under treatment in the Metropolitan Asylums Hospitals, which had been 673 and 613 at the end of the two preceding months, had further declined to 580 at the end of last month; the weekly admissions averaged 76, against 80 and 85 in the two preceding months. Enteric fever was much more prevalent than in any other recent month; the greatest proportional prevalence of this disease was recorded in Paddington, Kensington, the City of Westminster, St. Pancras, Holborn, Finsbury, Shoreditch, Bethnal Green, and Southwark. There were 58 enteric fever patients in the Metropolitan Asylums Hospitals at the end of last month, against 46 and 45 in the two preceding months; the weekly admissions averaged 11, against 8 and 6 in the two preceding months. Erysipelas was proportionally most prevalent in St Marylebone, Finsbury, the City of London, Shoreditch, Bethnal Green, Stepney, Poplar, and Southwark. The 25 cases of puerperal fever notified during the month included 4 in Stepney, 3 each in Fulham, Battersea, and Wandsworth, and 2 each in Shoreditch and Southwark. Of the 8 cases notified as cerebro-spinal meningitis 2 belonged to Finsbury.

The mortality statistics in the table relate to the deaths of persons actually belonging to the several boroughs, the deaths occurring in institutions having been distributed among the boroughs in which the deceased persons had previously resided; the death-rates are further corrected for variations in the sex and age constitution of the populations. During the five weeks ending Sept. 3rd the deaths of 4593 London residents were registered, equal to a corrected annual death-rate of 10·3 per 1000; in the three preceding months the rates were 12·4, 10 6, and 10·4 per 1000. The death-rates last month ranged from 6·3 in Hampstead, 7·5 in Stoke Newington, 7·7 in Lewisham, 7·9 in Woolwich, and 8·0 in Wandsworth, in Camberwell, and in Greenwich,

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING AUGUST, 1910.

(Specially compiled for THE LANCET.)

CITIES AND BOROUGHS.	Estimated population in the middle of 1910.	NOTIFIED CASES OF INFECTIOUS DISEASE.											DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.										Deaths from all causes.	Death-rate per 1000 living.†
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Typhus fever.	Enteric fever.	Other continued fevers.	Diarrhœa.	Total.	Annual rate per 1000 persons living.		
LONDON...	4,872,702	—	269	438	1	114	4	25	385	8	1844	3·9	—	141	18	35	67	—	11	—	239	511	1·1	4593	10·3
West Districts.																									
Paddington	153,004	—	21	12	—	5	—	—	10	1	49	3·3	—	—	1	1	—	—	—	—	7	9	0·6	119	8·6
Kensington	184,635	—	13	18	—	6	1	—	11	—	49	2·8	—	2	—	1	5	—	1	—	4	13	0·7	160	9·7
Hammersmith	127,413	—	30	7	—	2	1	1	5	1	47	3·8	—	—	—	2	4	—	—	—	6	12	1·0	103	8·7
Fulham	181,282	—	21	21	—	1	—	3	16	—	62	3·6	—	2	1	1	5	—	—	—	12	21	1·2	150	9·0
Chelsea	75,457	—	8	7	—	1	—	—	1	—	17	2·3	—	2	—	1	—	—	—	—	1	4	0·6	81	11·6
City of Westminster	167,233	—	21	15	—	5	—	—	3	—	44	2·7	—	1	—	1	1	—	—	—	1	4	0·2	125	8·7
North Districts.																									
St. Marylebone	125,195	—	15	7	—	1	—	1	13	—	37	3·1	—	—	1	1	2	—	1	—	2	7	0·6	93	8·2
Hampstead	96,729	—	7	4	—	2	—	—	2	—	15	1·6	—	1	—	—	—	—	—	—	—	1	0·1	51	6·3
St. Pancras	237,792	—	50	25	—	9	—	—	16	—	100	4·4	—	24	—	—	8	—	1	—	5	38	1·7	246	11·3
Islington	353,356	—	54	37	1	7	—	1	21	—	121	3·6	—	6	—	1	7	—	—	—	12	26	0·8	338	10·4
Stoke Newington...	54,838	—	9	6	—	—	—	—	3	—	18	3·4	—	4	—	—	1	—	—	—	—	5	1·0	38	7·5
Hackney	239,979	—	31	13	—	5	—	1	18	—	68	3·0	—	1	—	1	4	—	—	—	4	10	0·4	197	9·0
Central Districts.																									
Holborn	53,142	—	5	6	—	3	—	—	2	—	16	3·1	—	1	—	—	3	—	—	—	—	4	0·8	58	12·3
Finsbury	94,578	—	17	15	—	3	—	1	16	2	54	6·0	—	1	—	2	3	—	—	—	7	13	1·4	129	14·7
City of London	17,132	—	1	3	—	—	—	—	5	—	9	5·5	—	—	—	—	—	—	1	—	—	1	0·6	20	13·4
East Districts.																									
Shoreditch	114,387	—	18	8	—	10	—	2	15	1	54	4·9	—	6	—	1	2	—	1	—	10	20	1·8	153	14·6
Bethnal Green	131,579	—	32	20	—	8	—	1	19	1	81	6·4	—	6	3	5	2	—	1	—	10	27	2·1	171	13·7
Stepney	314,379	—	63	22	—	8	—	4	46	—	143	4·7	—	15	—	2	2	—	—	—	29	48	1·6	359	12·4
Poplar	172,432	—	42	18	—	3	—	—	29	—	92	5·6	—	1	2	2	4	—	1	—	22	32	1·9	216	13·5
South Districts.																									
Southwark	211,832	—	43	26	—	7	—	2	29	—	107	5·3	—	23	—	3	1	—	1	—	17	45	2·2	239	12·3
Bermondsey	127,238	—	46	24	—	2	—	—	11	—	83	6·8	—	23	3	1	2	—	—	—	18	47	3·9	194	16·3
Lambeth	327,074	—	77	26	—	7	—	1	20	1	132	4·2	—	8	2	3	1	—	—	—	17	31	1·0	325	10·7
Battersea...	188,222	—	37	21	—	1	1	3	9	—	72	4·0	—	—	—	1	2	—	—	—	18	21	1·2	157	9·3
Wandsworth	306,838	—	51	22	—	5	—	3	14	—	95	3·2	—	3	1	4	2	—	1	—	6	17	0·6	222	8·0
Camberwell	286,068	—	35	12	—	6	—	1	25	—	79	2·9	—	9	—	—	2	—	—	—	8	19	0·7	210	8·0
Deptford	119,642	—	21	5	—	2	1	—	9	—	38	3·3	—	1	—	1	2	—	—	—	15	19	1·7	142	13·0
Greenwich	112,935	—	14	19	—	1	—	—	5	—	39	3·6	—	1	—	—	2	—	1	—	6	10	0·9	84	8·0
Lewisham	164,899	—	36	14	—	3	—	—	2	1	56	3·5	—	—	2	—	—	—	—	—	1	3	0·2	117	7·7
Woolwich...	135,422	—	51	5	—	1	—	—	10	—	67	5·2	—	—	2	—	—	—	1	—	1	4	0·3	96	7·9
Port of London	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup.

† The death-rates are corrected for variations in sex- and age-constitution of the populations of the several boroughs, the population of England and Wales being taken as the standard.

to 13·0 in Deptford, 13·4 in the City of London, 13·5 in Poplar, 13·7 in Bethnal Green, 14·6 in Shoreditch, 14·7 in Finsbury, and 16·3 in Bermondsey. The 4593 deaths from all causes included 511 which were referred to the principal infectious diseases; of these, 141 resulted from measles, 18 from scarlet fever, 35 from diphtheria, 67 from whooping-cough, 11 from enteric fever, and 239 from diarrhœa, but not any from small-pox, from typhus, or from ill-defined pyrexia. The lowest death-rates from these infectious diseases last month were recorded in the City of Westminster, Hampstead, Hackney, Lewisham, and Woolwich; and the highest rates in St. Pancras, Shoreditch, Bethnal Green, Stepney, Poplar, Southwark, Bermondsey, and Deptford. The 141 fatal cases of measles were 21 in excess of the corrected average number in the corresponding period of the five preceding years; this disease was proportionally most fatal in St. Pancras, Stoke Newington, Shoreditch, Bethnal Green, Stepney, Southwark, and Bermondsey. The 18 deaths from scarlet fever showed a decline of 29 from the corrected average number; these 18 deaths included 3 in Bethnal Green, 3 in Bermondsey, and 2 each in Poplar, Lambeth, Lewisham, and Woolwich. The 35 deaths from diphtheria were 18 fewer than the corrected average number; of these 35 deaths, 5 were recorded in Bethnal Green, 4 in Wandsworth, 3 in Southwark, 3 in Lambeth, and 2 each in Hammersmith, Finsbury, Stepney, and Poplar. The 67 fatal cases of whooping-cough were 29 below the corrected average number in the corresponding period of the five preceding years; this disease was proportionally most fatal in Kensington, Hammersmith, Fulham, St. Pancras, Holborn, Finsbury, and Poplar. The 239 deaths from diarrhœa were less than one-fourth of the corrected average; the greatest proportional mortality from this disease was recorded in Finsbury, Shoreditch, Bethnal Green, Stepney, Poplar, Southwark, Bermondsey, Battersea, and Deptford. The 11 fatal cases of enteric fever were considerably below the average; not more than 1 death from this disease was recorded in any of the metropolitan boroughs. In conclusion, it may be stated that the aggregate mortality in London last month from these principal infectious diseases was nearly 62 per cent. below the average.

† The death-rates are corrected for variations in sex- and age-constitution of the populations of the several boroughs, and proportions of [illegible]

ASYLUM REPORTS.

Middlesbrough County Borough Asylum (*Report for the Year 1909*).—The average daily number resident during the year was 424. Admissions numbered 112, this being an increase of 25 compared with last year. Discharges numbered 55, of whom 33 had recovered, the recovery rate being 32·35 per cent. Deaths numbered 55, the rate being 13 per cent. on the daily average number resident. Post-mortem examinations were made in 43 cases, this being 78 per cent. of the cases. The asylum accommodates patients from Essex and Chester, and the Commissioners in Lunacy report that these complain much of being taken so far from their homes. It appears that one elderly female patient, whose husband is in the Chester workhouse, has been visited five times by him, the journey having in each instance been made on foot and having taken him, as the Commissioners were informed, a month to accomplish.

The Retreat, York (*Report for the Year 1909*).—The average number of patients in residence at this hospital was 176, exclusive of boarders, this being the highest on record. The number of patients admitted was 44, exclusive of voluntary boarders. Twenty persons were discharged recovered, the proportion of recoveries to admissions being 45 per cent., while 7 persons were discharged relieved, and 10 were discharged not improved. Five persons died during the year. The average daily number of voluntary boarders was 7·58. The medical superintendent, Dr. Bedford Pierce, points out as to the early treatment of the insane that it would be very helpful if the law permitted detention without certificates for a limited period. Dr. Pierce mentions how this provision exists in Scotland in respect to patients placed under private care, though it does not appear to him to meet the requirements of persons with limited means.

Wilts County Asylum (*Annual Report for the Year 1909*).—At this asylum the average number of patients resident was 972·4, of whom 438·3 were males and 534·1 were females. Admissions numbered 179. The most noticeable feature about the admissions was the extreme age of many of those admitted. No less than 28 were over 70, 6 of whom were from 80 to 85, and 3 from 85 to 90. The medical superintendent, Mr. J. I. Bowes, regards many of these as requiring a minimum of care and certainly not asylum treatment, though, in the absence of proper provision elsewhere, there was no alternative but to admit them. The admission of such senile persons, of course, tends to lower the recovery and to raise the death-rate. Sixty-two patients were discharged, and of these 44 were recovered, 8 relieved, and 10 not improved. The percentage of recoveries has been lower of recent years, and this "undoubtedly arises from the insanity of the day being of a less curable form, particularly in the men, and from the increasing number of congenitally defective and senile dements sent to the asylum." Ninety-eight patients died, this giving a death-rate of 10.

Down District Asylum (*Annual Report for the Year 1909*).—The daily average number resident during the year was 754. Admissions numbered 147, being four in excess of the number admitted in the previous year. It is interesting to note that, as Mr. M. J. Nolan, the resident medical superintendent, points out, the physical condition of these 147 persons was unsatisfactory in almost every instance. The fact is surely confirmatory of that method which insists that the early treatment of insanity shall consist of careful nursing. Discharges numbered 90, and of this number 81 were recovered, 7 were relieved, and 2 were not improved. The recovery-rate was 55·1, and is a high one, upon which we think Mr. Nolan is to be congratulated. Deaths numbered 7·6 per cent. of the daily average number resident.

Monmouthshire Asylum at Abergavenny (*Report for the Year 1909*).—The average number daily resident at this asylum was 922. 162 patients were admitted, of whom 91 were males and 71 were females. The proportion of patients admitted over 65 years of age was considerably less than the average of the previous five years. Seventy-eight patients were discharged during the year, and of these 54 were recovered and 15 relieved. The recovery rate for the year, calculated on the total number of admissions, was 33·3 per cent. Thirty-five of the recoveries were of patients who suffered from a first attack of insanity, while the total duration of the attack in 44 of the recoveries was of less than 12 months. There were 86 deaths during the year, and in 80 per cent. post-mortem examinations were made. The average age at death was for males 56 years and for females 58 years.

Asylum for the Counties of Salop and Montgomery and for the Borough of Wenlock (*Report for the Year 1909*).—At this asylum the average number daily resident for the year reported on was 771. Admissions numbered 230, and of these 69 were readmissions. The discharges numbered 151, and of these 85 were discharged recovered and 21 relieved. The proportions per cent. of recoveries to admissions were 37 for males and 36 for females. Of the patients recovered 87·05 per cent. had been resident for less than 12 months. There were 89 deaths, the percentage on the average number resident being 11·18. Of the deaths, 19·1 were caused by tubercular disease, this being a decrease of 8·9 per cent. on the year 1908. Post-mortem examinations were made in 49 per cent. of the deaths. It appears that many patients belonging to the two counties are, owing to lack of accommodation, boarded out in the institutions of other counties. The Commissioners in Lunacy point out that an alteration of this state of affairs is most desirable, and they understand that a dissolution between the two counties for asylum purposes is under consideration; but even if this should take place the number of available beds will be so few in number as to necessitate the provision at no distant date of further asylum accommodation for the county of Salop.

Worcestershire Asylum at Bromsgrove (*Report for the Year 1909*).—The average daily number on the registers was 467. There were admitted 222 patients. More than half of the direct admissions were suffering from forms of insanity which are incurable. Dr. Percy T. Hughes, the medical superintendent, directs attention to the number of senile cases which are sent to the asylum, and suggests that many of these old people would be economically and efficiently cared for in the union infirmaries without any undue administrative or structural alterations. Dr. Hughes also points out how large a proportion of cases are admitted suffering

from physical disorders which have a direct influence upon the mental state, and how necessary it is that the fullest possible clinical investigation should be made in every case. He expresses a hope that more drastic legislation will, in the near future, be undertaken with a view to the prevention of insanity. "Under present conditions patients have to be discharged as recovered who are altogether unfitted to be the parents of children, and with every asylum authority urging the grave influence of heredity as a causal factor of insanity it is surely very necessary that some alteration of the present improvident methods should be adopted." Fifty-two persons were discharged and of these 28 were recovered and 15 relieved. During the year 71 deaths occurred and in the large proportion of 95 per cent. post-mortem examinations were made.

Hertfordshire County Asylum at Hill End, St. Albans (Report for the Year 1909).—At this asylum the average daily number on the register was 765. There were 306 admissions, of which 154 were direct. Recoveries numbered 39, being a percentage of 25 3 on the direct admissions. Deaths numbered 47—a percentage of 6·14 of the average daily number on the register.

Lincolnshire County Asylum, Kesteven (Report for the Year 1909).—The average number in residence during the year was 399. The total number of cases admitted was 100. In only 18 cases was the outlook regarded as favourable. The general health of the patients on admission was unsatisfactory, over 50 per cent. being classified as bad or indifferent, and many of them suffering from some recognisable physical disorder. Thirty-one patients were discharged, with a recovery rate, calculated on the direct admissions, of 33 per cent. Of those who recovered 43 per cent. had been less than six months under treatment, and 70 per cent. less than a year. In 78 per cent. mania in one of its forms was present as the prominent feature of the disease, emphasising the fact that this condition is more curable than is melancholia. Twenty-six persons died, giving a death-rate of 6·5 per cent. Post-mortem examinations were made in 77 per cent. of the deaths.

Nottingham City Asylum (Report for the Year 1909).—The average number resident at this asylum for the year 1909 was 815. The number of admissions was 169, general paralysis being present in 24 cases. Eighty-one persons were discharged, the recovery rate being 44 per cent. of the admissions. Deaths numbered 77 and post-mortem examinations were held in 90 per cent. of these.

THE SERVICES.

ROYAL ARMY MEDICAL CORPS.

Lieutenant Walter C. Rivers, Half-pay List, resigns his commission (dated August 27th, 1910).

Colonel A. Peterkin has been appointed Administrative Medical Officer for the Second (Aldershot) Division, army manœuvres. Colonel S. C. B. Robinson, Principal Medical Officer of the Jubbulpore and Jhansi Brigades, has arrived home on leave from India. Lieutenant-Colonel W. L. Reade, at present in charge of the Royal Infirmary at Dublin, has been placed under orders for service in Mauritius, and will embark about the middle of October. Lieutenant-Colonel W. C. Beevor, C.M.G., in command of the Station Hospital at Bangalore, has been selected for the higher rate of pay under Article 317 of the Royal Warrant, vice Lieutenant-Colonel R. H. S. Sawyer, promoted. Lieutenant-Colonel H. W. Austin, in medical charge at Deepcut, having notified his intention to retire from the service, has had his name removed from the roster for duty abroad. Lieutenant-Colonel S. Powell has arrived home on leave from Rangoon. Lieutenant-Colonel C. R. Tyrrell, administrative medical officer at Bordon, has been selected to act as Deputy Director of Medical Services on the staff of the Red Force during army manœuvres. An exchange of positions on the roster of foreign service has been approved by the War Office between Major S. M. Fairrie, Shorncliffe, and Major C. M. Fleury, serving at Tidworth. Appointments to the higher rate of pay under Article 317 of the Royal Warrant have been sanctioned for Major G. S. McLoughlin, D.S.O., Major W. W. O. Beveridge, D.S.O., and Major R. J. W. Mawhinny. Captain R. Rutherford, on completion of his course for promotion at the Royal Army Medical College, has been appointed to the Scottish Command and posted to Edinburgh for duty. Captain P. J. Hanafin, from Reading, has joined at Parkhurst. Captain W. McConaghy, on return from a tour of service in South Africa, has been posted to Wedgnock Camp. Captain J. Fairburn has been transferred from Buddon Camp to the Military Hospital at Glasgow. An exchange on the roster for foreign service has been approved by the War Office between Captain W. R. P. Goodwin and Captain R. N. Woodley. Captain F. M. M. Ommanney has been selected to succeed Captain B. S. Bartlett as company officer at Colchester. Lieutenant R. G. S. Gregg has been transferred from the Station Hospital, Calcutta, for duty at Lucknow. Lieutenant H. V. Stanley, from Cork, has taken up duty at Kinsale. Lieutenant F. W. M. Cunningham has been appointed to Donard Camp from the Curragh. Lieutenant J. F. Grant, on completion of a course of instruction in X rays and electrical science at Dehra Dun, has joined at Benares.

INDIAN MEDICAL SERVICE.

Lieutenant-Colonel F. R. Ozzard has reverted to military employment. Lieutenant-Colonel J. A. Burton has been granted five months' leave home from India. Lieutenant-Colonel H. E. Drake-Brockman has been appointed to officiate as Residency Surgeon and Administrative Medical Officer of Indore, Central India, during the absence on leave of Lieutenant-Colonel J. R. Roberts. Major B. C. Oldham, in medical charge of the 24th Parganas, has been appointed to officiate as a Civil Surgeon of the First Class. Major J. A. Hamilton has been appointed to the medical charge of the Followers' Hospital at Neemuch. Major E. L. Perry has been confirmed by the Government of India in the appointment of Deputy Sanitary Commissioner of the Punjab. Major P. K. Chitale has been granted three months' privilege leave. Major J. A. Black, Bombay, has embarked for India. Captain J. Owens has been appointed to officiate as Chemical Examiner of Bengal, vice Major J. S. Black. The services of Captain J. B. Christian have been placed permanently at the disposal of the Government of Eastern Bengal and Assam. Captain N. S. Sodhi has been detailed as an Assistant Medical Officer in charge of plague prevention in the Punjab. Captain D. P. Goil has been appointed to officiate as Civil Surgeon of Rampore Boalia during the absence of Major J. Leventon on deputation. Captain W. S. Patton has been confirmed in his appointment as a member of the Government Bacteriological Department. Captain H. B. Scott, special plague officer of the Meiktila Division, Burma, has been posted temporarily for plague duty in the Pegu Division in place of Captain W. F. Brayne, proceeding on leave. Captain W. H. F. Cowan has taken over the civil medical charge of Multan. H.E. the Governor of Bombay has appointed Captain A. F. Hamilton Assistant Civil Surgeon of Poona, vice Captain W. M. Houston. Captain P. S. Mills has been appointed a Specialist in Ophthalmology to the Fifth (Mhow) Division. The services of Captain S. B. Mehta have been placed temporarily at the disposal of the Government of the Punjab for employment on plague duty. Captain E. C. Hodgson has been appointed to officiate as medical officer of health at Simla during the absence on deputation of Captain H. M. Mackenzie. Captain A. Chalmers (Madras) has embarked for India on completion of his leave. Captain J. M. Skinner has been selected as fourth physician to the Medical College Hospital, Madras. On return from leave Captain J. J. Robb has been posted to act as superintendent of the Central Jail at Vellore. Captain W. J. Collinson has been granted four months' extension of his leave by the Secretary of State for India. Captain J. Good has been appointed medical officer in charge of the Rangoon Volunteer Rifles. Lieutenant J. F. James has been transferred to Jalpaiguri as Civil Surgeon.

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

Clarence Edward Greeson to be Lieutenant (on probation) (dated August 17th, 1910).

TERRITORIAL FORCE.

Royal Army Medical Corps.

The promotion of Major James Wilson is antedated to July 10th, 1910.

TERRITORIAL NURSING AND RED CROSS NOTES.

On Sept. 16th the Speaker of the House of Commons delivered an address at Penrith before a crowded audience on the formation of Voluntary Aid Detachments under the British Red Cross Society. Mr. Lowther reminded those who asked why it was necessary to make themselves ready now in times of piping peace for an invasion which was not likely to occur, that it was the unexpected which always happened. It was true we had a magnificent navy, and as long as that navy was supreme upon the seas there was no possibility of a foreign foe landing on our shores. But he would be indeed a bold man who would say that the Navy would always be in the position to prevent an invasion. Our shores had been invaded in the past; they might possibly be invaded in the future. By the establishment of branches throughout the country the Red Cross movement provided a vast and immediate extension of the resources of the Royal Army Medical Corps in case necessity should arise. It was a mistake, in his judgment, to rely entirely upon the State for everything which was required, and voluntary services were more readily given than those obtained by compulsion. Ladies by learning home nursing could help in the work and thus become useful members of the State.

A public meeting was held at Pitlochry on Sept. 12th for the purpose of forming a district detachment of the British Red Cross Society in connexion with the Scottish Territorial Medical Service. Lady Tullibardine, who presided, said that while the Territorial nursing scheme included men, it conferred an especial privilege upon women by enabling them to take their share in the great and necessary work of national defence. Every woman, whether trained or not, whatever her age, who had a little spare time could enrol as a member of the society. She pointed out that under the existing Territorial arrangements there was a very serious gap in regard to conveying the sick and wounded from the field ambulance to the base hospitals, which could be filled by the voluntary service of men and women.

THE JOURNAL OF THE ROYAL ARMY MEDICAL CORPS.

The September issue of this journal has a further instalment of Lieutenant-Colonel R J. Simpson's medical history of the South African War. In the same number Captain L. Bousfield continues his account of a tour of investigation as to the prevalence of kala-azar in Kassala and the Blue Nile districts of the Soudan, and Captain P. J. Marett publishes an interesting preliminary report on the breeding-places of the sand fly in Malta. This is a sequel to the work on sand fly fever carried out by Lieutenant-Colonel C. Birt in 1909. "Notes on the Conveyance of Sick and Wounded by Rail, with Special Reference to Improvised Methods," by Lieutenant-Colonel H. E. R. James and Major C. G. Pollock, contain exactly the kind of information which will prove useful not only to medical officers of our Regular forces, but also to those of the Territorial forces and to the auxiliary organisations concerned with national defence. It will be remembered that Lieutenant-Colonel James dealt with the subject of the adaptation of a motor omnibus and Scotch hay cart for the carriage of wounded men in the July issue of the *R.A.M.C. Journal*.

PLAGUE IN MONGOLIA.—Correspondence from Kiachta says that in consequence of three deaths from cerebro-spinal meningitis in the town of Troitskav the local inhabitants are alarmed, thinking they are in the presence of tabargan ("jumping hare") plague. A Russian correspondent writes: "The 'jumping hare' is common in Transbaikalia and Mongolia, and is exported in large quantities into Russia, where it is used for the purpose of imitating sable and other furs. The tabargan is said to be—like the rat—very susceptible to the plague, and one of the most active propagators of it. Dr. Borodin of Akschinsk, who was in the village of Stary Tzuruchaitai this summer, learned from a Buriat who had been a few versts over the Mongolian frontier, that on the river Tap some 'dreadful sickness,' probably the tabargan plague, was prevalent amongst the inhabitants, and that there were villages where not a single recovery could be recorded amongst those who fell sick."

Correspondence.

"Audi alteram partem."

ANTISEPSIS IN MIDWIFERY PRACTICE.

To the Editor of THE LANCET.

SIR,—With reference to the recent correspondence about sterilising midwifery instruments, possibly the following account of my own experience may be useful, though one has naturally some diffidence in offering any remarks in such illustrious company. I began by causing a local tinsmith to make a small, light steriliser of thinnest tin. It was just large enough to hold my forceps. I carried it easily in my bag and used it frequently with satisfaction. It then occurred to me to try a plan which would enable me to use a smaller spirit lamp, carry less spirit, and at the same time save some of the 15 or 20 minutes necessary for my steriliser to reach boiling point. I accordingly tilted the steriliser so that one end was several inches lower than the other, poured two or three ounces of hot water into it, and placed a single small spirit lamp under the lower end. The water quickly boiled and filled the closed steriliser with boiling-hot steam. Afterwards, I gave up the steriliser and used a thin tin douche can of the same dimensions as the steriliser, and having a lid but no spout. It was used in the same way—i.e., by having a few ounces of water boiled in the bottom of the tin. Wire supports to hold the can erect, or sharply inclined, can be easily made and attached.

This device, besides rapidly sterilising forceps and gloves, supplied the great desideratum of a sterile douche can in place of the septic household jug. Of course, the instruments have to be well cleansed from organic or greasy contamination before trusting them to steam disinfection. I have been told, but do not know if it is true, that the addition of a little formalin to the water increases the antiseptic power of the steam. I have also tried the expedient of connecting the spout of a douche can, by means of a few inches of rubber tube, to the spout of a small kettle on a spirit-lamp. In a glass douche reservoir a thermometer (well wrapped in lint) registered 210° F. in a few minutes after the kettle began to boil. The reservoir was kept closed by a folded handkerchief. This plan might prove useful to those who prefer to sterilise the forceps before going to their case. For the instrument, wrapped in cloth, can be sterilised without being wetted. Any dampness that may hang about the cloth can be dried off in front of the fire without unwrapping the forceps. The forceps themselves become so hot that steam cannot condense upon them.

I am, Sir, yours faithfully,

V. T. CARRUTHERS,
Captain, Royal Army Medical Corps.

Kandy, Ceylon, August 9th, 1910.

COLD-BATH TREATMENT OF INFANTILE CONVULSIONS.

To the Editor of THE LANCET.

SIR,—I wish to support the opinions of Mr. M. G. Pearson as set forth in THE LANCET of July 16th, p. 180, also Captain W. E. McKechnie, I.M.S., as set forth in THE LANCET of Sept. 17th, p. 912. I agree with Mr. Pearson that the lists usually copied from one text-book to another play a very small part in the cause of convulsions. We usually find, on being called to see a patient in convulsions, that it has been having, known or unknown to the nurse or mother, some very undesirable substance, such as potatoes and meat, some very strong soup, or some fruit of the most indigestible kind, which, whether from fear or some other cause, is not spoken about till the child is well, or, it may be, vomits the substance.

I have formed the opinion that the indigestible substance lying in the stomach is the cause of the convulsions; that hyperpyrexia is a symptom, just as movements of the limbs and eyes; that hyperpyrexia is the most dangerous symptom, and it is by controlling the fever that recovery may be expected. After taking the temperature and pulse-rate I give an enema with a piece of soap about the size of the little

finger inserted into the rectum and worked backwards and forwards till there is a good evacuation, after which I plunge the patient into a cold bath.

My reason for giving the enema is to clear the lower bowel and assist the peristaltic motions of the bowels and so help to get the indigestible substance out of the stomach as quickly as possible. I have never tried to give an emetic, being rather afraid of choking the patient, as there is always difficulty in swallowing. I have always found that the enema suited well. My reason for the cold plunge is to get the hyperpyrexia under control. The case that I tried the cold water with first was a little fellow, on New Year's night, 1906, whose father had been feeding him on short-bread and cake, as supplied during the New Year's festivities. I was called in a hurry to see the little fellow. Unfortunately, I was not at home when the messenger reached my house. The parents decided to await my return. When I arrived I found the temperature 106½° F., the pulse very rapid, and the child unconscious, with all the usual convulsive movements. The child had had quite a number of hot baths with mustard, with no result. I plunged him into cold water on a cold frosty night, with the result that the convulsions ceased within three minutes; consciousness returned within seven minutes. The temperature subsided to normal within ten minutes. There was no appreciable shock to the little fellow. When I called on the following morning he was quite well. He never had another convulsion until about 18 months afterwards when an attack of pneumonia was heralded by a slight convulsion. So far he has not since had any illness that I am aware of.

Since 1906 I have used cold baths frequently, always with good results. Cold bath treatment of convulsions with the enema of soap has proved very successful in my hands. I strongly recommend this treatment to the attention of the profession.—I am, Sir, yours faithfully,

P. CARRUTHERS WATT, L.R.C.S. Edin., &c.

Gatehouse of Fleet, Galloway, N.B., Sept. 17th, 1910.

POOR-LAW REFORM.

To the Editor of THE LANCET.

SIR,—In view of the fact that consideration of this great question must be a matter for decision during the winter months by the members of the medical profession, the time appears to be ripe for the inquiry whether the profession as a body desires that its affairs should be regulated by itself or by the State. Some consolation may be derived by the members of the British Medical Association for the loss of its Charter from the fact that the executive of the Association has apparently been captured by the Fabian Society.

If this is denied, at all events the views of the medical gentlemen who act as organisers are tolerably well known, and such views appear to approximate to those of the Fabians. A warning, therefore, may not be out of place. Those of the profession who do not wish to accept legislation based upon the views of that society must vote against and use their utmost endeavours to combat any legislation based upon such views. In fact, there is nothing before us except a straight fight with the Fabians.

I am, Sir, yours faithfully,

Hatfield, Sept. 8th, 1910. LOVELL DRAGE.

PS.—The views of the Fabian Society to which I direct attention are those in favour of State interference and State control.

TEAR OF THE INFERIOR VENA CAVA, WITH SURVIVAL FOR NINE HOURS.

To the Editor of THE LANCET.

SIR,—I beg to bring to your notice the following unusual abdominal injury which may be of interest to your readers.

A girl, aged 7 years, was admitted to the Royal Hospital, Portsmouth, at 10 A.M. on Sept. 12th. She had been run over by a milk-cart one and a half hours previously, the wheel passing over the epigastric zone. On admission the child was very pale, restless, and wore an anxious expression. The temperature was 96° F., the pulse 150, and the respirations 32 per minute. The skin was cold and clammy, and vomiting was most troublesome. All the symptoms pointed to severe abdominal hæmorrhage, and a rupture of the spleen was suspected. No operation was performed, and the child died at 5.30 P.M. on the same day, nine hours after the accident.

At the post-mortem examination I found the abdominal cavity full of dark clotted blood. The only injury present was a transverse tear in the inferior vena cava at the point where it pierces the diaphragm. The tear was large enough to admit the index finger with ease. No other injury could be found.

It is somewhat remarkable that this child should have lived for nine hours with such a serious abdominal lesion.

I am, Sir, yours faithfully,

H. M. ANDERSON,
House Surgeon, Royal Portsmouth, Portsea, and Gosport Hospital, Portsmouth.

Sept. 16th, 1910.

A CORRECTION.

To the Editor of THE LANCET.

SIR,—In your review of my work on "Difficult Labour" there is a typographical error which I ask leave to correct. Your reviewer accuses me of saying that "to expect to stop bleeding from the uterus by applying a *plug* to the vagina is absurd." I will not quote his comment, which would have been deserved if I had said this. What I called absurd is "applying a *drug* to the vagina" (p. 346)—i.e., to try and stop bleeding from one place by applying a styptic to another. I think plugging the vagina is bad practice, but I did not say it was "absurd." I am, Sir, yours faithfully,

Harley-street, W., Sept. 17th, 1910. G. E. HERMAN.

TREATMENT OF A CASE OF DYSMENORRHŒA.

To the Editor of THE LANCET.

SIR,—The following case may be of some interest. The patient was a woman, aged 26 years, a governess, and complained of painful menstruation. In girlhood she lived on Thornton Moor, later at Shipley. Her history was vague, but she thought menstruation had always been painful. This point was quite clear, that when living a year in Birmingham, and later for four years in London as governess, she had no pain. When she went home pain returned. The description of the pain was also uncertain. It usually began soon after the flow, and lasted about four hours; it was very severe, and was accompanied by passage of clots. The clots and pain ceased after passage of membrane. (This was doubtful, and she could not tell me whether she had had clots in London.) The recent menstruations, of which I obtained an exact residential history, were as follows:—

Month.	Locality.	Preceding month's residence.	Pain.
1908.			
May.	Shipley.	London, to preceding day.	None.
June.	Belgium.	12 days preceding in Belgium.	,,
,,	Burnsall.	25 Shipley, 2 Burnsall.	Some.
July.	Shipley.	25 preceding Shipley.	Great.
August.	Cornwall.	21 preceding Cornwall.	Slight.
September.	Shipley.	25 preceding Shipley.	Some.
October.	,,	5 Shipley, 7 London, 14 Shipley.	Considerable.
November.	Seaton, Devon.	27 Shipley, 3 Seaton.	Great.
December.	London.	23 Seaton, 4 London.	Slight.
1909.			
January.	Shipley.	3 London, 25 Shipley.	Great.
February.*	Shipley.	Shipley.	,,
May.	Shipley.	24 Shipley.	Considerable.

* After this she was dilated, and also spent a holiday in Cornwall.

From which it will be seen that the pain was roughly proportional to the length of time spent at Shipley before the day; conversely, immunity depended on the time elapsing since leaving Shipley.

Family history.—Her sister had menorrhagia and eczema, and was said by a gynæcologist to be gouty. The patient herself had been treated by many drug treatments, and the eminent gynæcologist who performed dilation had ascribed her trouble to gout, and given her dieting treatment without avail. Hearing that drugs and diet had been of no use I bethought me of the drinking water, and sent for a specimen to be drawn first thing in the morning from hot and cold taps

half from each. I found that the family drank early morning tea, made from the first hot-tap water, and that this was also used to make breakfast tea, coffee, and porridge. The sample I examined early in June contained over 1-9th grain of lead per gallon. I immediately ordered her to avoid that water and drink milk instead. (A milk and vegetarian diet had been tried before without prohibition of drinking tea, with no success.) The whole of the next two months were spent in Shipley, till within two days of the next period, when she went to London. The June menstruation was practically, the July one quite, painless. August was spent away from home, but in September she went home for a week, eight days before menstruation, and thought for so short a time she might neglect precautions; the subsequent menstruation was painful.

Besides the examination made early in June the Health Office reported a "trace of lead" in a sample taken from the cold tap during the day a week later. Three and a half weeks later I again examined a morning sample, half hot, half cold, and found 1-12th grain per gallon. Knowing the frequency of abortion in plumbism and of lead as a factor in causing gout, and considering that hens near lead mines lay soft-shelled eggs, and that calcium is a great determinant of menstruation, and that certain worms with calcium-excreting glands are immune to lead poisoning, does it not seem possible that lead poisoning, acting by disturbing the calcium metabolism, may be the cause of a good many cases of dysmenorrhœa, especially when they are said to be gouty and vary with the residence? And may not this also account for the marked improvement that is reported after constant current treatment?

Two other points emerge of some interest. 1. When first consulted, in September, 1908, I imagined it to be congestive dysmenorrhœa, from the description. She also told me that it almost invariably began between 10 A.M. and 1 P.M. The interval between periods varied from 26 to 31 days. I ordered a large concentrated dose of salts on rising and no fluid at all till teatime, with the idea of reducing the congestion, and found that the result each time was to delay onset till after late dinner, 9 to 10 P.M. Although the pain recurred, not quite so severely, next morning, it was a great convenience, as it obviated the perpetual fear of being taken by surprise in the middle of some engagement. With evening onset the first severest pain occurred at a time when she could apply hot bottles, &c., without attracting attention if staying away, and next day she stayed indoors till it was over. Moreover, she could always guarantee herself to be free from pain on any particular day by allowing it to come on on the morning of the preceding day if it would, and if not then she took salts and deferred onset until the special engagement was over. 2. Examination of the variation of period intervals apparently reveals a curious relation to change of residence during the days of menstruation, including the day or two before and the 10 or 12 days following—in fact, the period of uterine activity. Change of residence during the first four days of that period apparently caused the next menstruation to appear a day too soon; change of residence during the later days of that period delayed it two, three, or four days—the later the change the longer the delay. Curiously enough, the rule seemed to apply also to the termination of pregnancy. The circumstances were complex, as she paid many visits; but I decided beforehand that by the rule laid down labour should begin on one of two days, the 273rd or 283rd days of pregnancy. The latter proved correct. I wonder if other observations support these?

I am, Sir, yours faithfully,

A. H.

POOR-LAW MEDICAL REFORM AND THE MAJORITY AND MINORITY REPORTS OF THE ROYAL COMMISSION.

To the Editor of THE LANCET.

SIR,—The discussion which took place at one of the meetings of the Section of State Medicine of the British Medical Association upon the relation of Poor-law reform to public health and the medical profession appeared to show that if the choice had been given to the speakers between the medical schemes of the Majority and of the Minority of the Poor-law Commission, to the exclusion of all other proposals for reform, the latter would have been selected. That is to say, the scheme for the amalgamation of clinical and sanitary services found advocates who regarded it with favour, whereas the proposal for an enlarged system of provident dispensaries under lay control, dealing with Poor-law patients as well as with others, did not secure support. Mrs. Sidney Webb spoke as the uncompromising advocate of the Minority report, and it is to be regretted that no champion of the Majority report should have followed her, in order that their scheme might have been put in a more comprehensible and favourable light before being criticised. We should then have learnt at first hand whether its proposals were intended to convey all that Mrs. Webb represented, as to which I have my doubts.

The medical scheme of the Majority report does not appear to form an integral part of it in the sense in which the handing over of the Poor-law medical service to the sanitary authority forms an integral part of the dividing-up process recommended by the Minority. The impression produced is that the combination of Poor-law and sanitary service essential to the carrying out of the Minority scheme might be feasible under Poor-law authorities not wholly dissimilar from those now in existence, or might be introduced under the Public Assistance authorities devised by the Majority. It is true that those who signed the Majority report considered and rejected the proposal to transfer the medical service to the sanitary authorities, but that is another matter. The reasons for their preference, as stated in Part V., Ch. 3, of the report, cannot appear as very conclusive, for they appear to assume that the authority responsible for the efficiency of the medical service would necessarily be charged with the duty of inquiry as to means and with the recovery of charges. The paragraphs dealing with the matter may be read by those who question the accuracy of Mrs. Webb's statement of the case against the Majority report, which in the absence of any representative of the other point of view she was able to make without comment or criticism. Par. 207 commences thus: "An adequate inquiry as to the means of a patient is the only foundation upon which we can build up a system of public medical assistance in which each patient, other than the very poor, contributes according to his ability towards the cost of his treatment at the public expense." Mrs. Webb[1] spoke as if the principle of free medical treatment, to be *followed* by inquiry as to means and recovery of charges, was an objectionable feature of the Majority scheme, which has no advantage in this respect over that of the Minority. Under the Majority scheme, according to her, "The sick pauper is no longer to be required to go to the parish doctor. He is to be given a free choice of doctors and to be put, in fact, in the same position as if he came bringing a half-crown fee in his hand. ..... The Majority report makes on this point, specifically and definitely, the same proposition as the Minority." And again: "In actual fact, the Majority report lays it down, over the signature of all the Commissioners, that treatment is to be immediately and freely granted to every applicant who is sick, and that inquiry with a view to the exaction of payment where means allow is to follow, not precede, the treatment."

The Majority of the Royal Commission contemplated the supervision of medical relief by an authority exercising powers of discrimination through an appointed officer, and the making of it conditional, for example, on the maintenance of a healthy domicile and good habits; surely it spoke of the dispensing with the services of the district medical officer only as a result to be ultimately achieved when his duties would be shared among other medical men of the district. I am aware that it recommended that a medical man joining a dispensary should be prepared to attend for a suitable fee any case of sudden and urgent necessity, but this seemed to point to inquiry and the raising of conditions before anything like repeated medical attendance took place. That there should be prompt attendance in urgent cases without the delay necessitated by a relieving officer's inquiry must be regarded as a reform desired by others besides the members of the Majority of the Commission. "It is clear that in the public interest neither the promptitude nor the efficiency of medical treatment must be in any way limited by any consideration of whether the patient can or should repay the cost," is a sentence occurring

[1] Brit. Med. Jour., August 13th, 1910.

in the report of the Minority, which may not imply an extension of State medical aid wider than that which would take place under the dispensary system of the Majority, but which certainly does not foreshadow its curtailment. Whether the combination of the work of the sanitary authority with that of the treatment of the sick who cannot pay for their treatment may be desirable is a point arguable on its merits, apart from the question of what is to be the destitution or Public Assistance authority. The discussion which followed the speech of Mrs. Webb seemed to treat the question of medical service as one apart from the general one of Poor-law administration.

I am, Sir, yours faithfully,

Sepemtber, 1910. INTERESTED.

THE BRUSSELS UNIVERSAL EXHIBITION.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

(*Concluded from p. 851.*)

Health Exhibits in the Belgian Section.

THE largest building of the Exhibition contained the principal portion of the Belgian exhibits, and this was completely burnt down. One end of this structure stood in front of the British section and was devoted to lace and clothing. It was in this angle, made by the British and Belgian sections, that the fire began, and the first things to be destroyed have already been described, however incompletely. The fire spread from Belgian clothing materials and models to jewellery, furniture, glass, decorative arts, paper, and leather, and struck Class XVI., which was devoted to medicine and surgery. Here there were some very fine wax models of skin and other diseases, notably anthrax of the face and head, cancer, and epithelioma. In this class also was placed a model room for dental operations, containing numerous electric appliances. This was done by the National Belgian Dental Federation. Near at hand were statistics and pictures relating to the Institut de Mécanothérapie of Dr. Balteaux of Brussels and also to the Zander Institute, the latter illustrating the various exercises employed in the treatment of articular ankylosis. This latter institute is connected with the service established for accidents at Liège. The surgical instruments and furniture for operating-rooms from the Belgian manufactory of Gembloux were not numerous, nor was it claimed that they presented any new features.

In the Belgian educational department there was a collective and international astronomical exhibit. The observatories of Greenwich, Heidelberg, Juvisy, and Yerkes all contributed photographs of comets, nebulæ, earthquakes, and numerous other physical phenomena. Seismology had also a show here, and then there were very extensive exhibits relating to radium. In the form of little dolls' houses there was a complete model of the works for obtaining radium as planned by Madame Curie. Then there was a laboratory all fitted up for experiments with radium, and many photographs and specimens of medicaments that had been exposed to radium or its emanations. Among various drugs thus treated there were radio-quinine, radio-septol, radio-digestin, radio-santal. A sample of flax sown in two flower-pots was likewise very interesting. One pot was watered with ordinary water, the other with water containing radium, and the growth of the latter was far more luxuriant. Close by a gold fish was swimming in a glass bowl containing water with radium, and the fish seemed as happy as fish can be under such limitations of space. A considerable number of photographs of cancer and other diseases treated by radium by Dr. Wickham and Dr. Degrais (of Paris) were suspended from the walls. Close at hand various temperance societies covered a large wall-space with diagrams and pictures to establish their activity in the cause of sobriety. And near them were fine models of improved and cheap dwellings, which undoubtedly have a good claim to credit for helping to maintain temperance. Some of these artisan dwellings are so pretentious that they call themselves "workmen's palaces"; and the cottages, in suburban or rural districts, are entitled the "Workmen's Eden." A panorama of the sanatorium of Borgoumont was close by these, and so admirably done that the impression was life-like. This opinion I am the better able to express as I assisted at the inauguration of this building, together with other members of the International Congress of Hygiene, when it met in Brussels in 1903.

The Maison du Peuple: Refreshments during the Conflagration.

After these and many other exhibits came the telephone and food sections, and here the large building ends and the Avenue of Nations commences. This consists of a number of small structures, pavilions, and restaurants, beginning with a Bovril cottage and ending with a Bodega wine cellar. Here also the great labour coöperative organisation, which has established a Maison du Peuple in all the industrial and mining centres of Belgium, has its exhibit and café. When the fire broke out the idlers and spectators were sent away, the tills were closed, and business ceased. Then the doors were opened and the Maison du Peuple was converted into a place of help for those who were struggling against the flames. Exhausted firemen, policemen, soldiers were all hospitably received and given some food or drink, according to their requirements. The great demand, however, was for drink. The intense heat of the fire caused great suffering. But, as the first Maison du Peuple was founded on a coöperative bakery and the making of bread still remains the principal output of these institutions, the operatives were well accustomed to deal with the thirst caused by working near the heat of the baking ovens. Therefore they distributed among the police and firemen what they give to their journeymen bakers—namely, gallons and gallons of *cooo*, an infusion of liquorice and aniseed which is very refreshing and can be drunk in reasonable quantities without fear of evil consequences. The readiness with which a generous supply of this popular beverage was forthcoming contributed to mitigate the sufferings of those who were endeavouring to check the spread of the flames.

The Belgian Section of Hygiene.

On the other side of the Avenue des Nations there are smaller, less pretentious buildings for Belgian exhibits, which were far enough away to escape destruction. Among these is one of special interest. At the entrance there is a large statue intended to represent "The Law Protecting the Worker." On one side are courts devoted to hygiene and on the other side to poor relief, while in the centre there are the exhibits of the Minister of Industry and Labour. These latter consist, among other things, of a map indicating for all parts of Belgium how many workmen work in mills and factories or are home workers. Then there are statistics on the diseases of occupation, the effect of various kinds of dust on the lungs, blood, or liver, and details relating to lead poisoning. A series of photographs indicate the methods adopted to prevent accidents to dockers, and, indeed, there are a good many exhibits relating to work in and about ships.

In the Hygiene Section there are naturally many demographical charts and diagrams of all sorts. There is one rather sinister diagram giving the results of analyses of milk. A large map of Belgium sets forth the effect of the law of August 4th, 1890, on the examination of meat. According to this law each commune or local authority must organise a system of inspection, and if this is neglected then the Government does it for them. To judge from the map the intervention of the Government was necessary in a great number of districts. Another map indicates exactly where medical practitioners, midwives, and dispensing chemists are to be found, and other maps illustrate in a similar way the various sanitary services. Thus, there are spotted maps for notified cases of transmissible diseases, for isolation hospitals, and for the disinfecting stations throughout Belgium. Another map gives all the water-supplies, and fine coloured maps compare the general mortality with the infantile mortality. Though there is a general similitude between the two, it is not absolute. In some districts the general death-rate is very high, while the infantile rate is not so exceptionally bad.

There is one very large map of the world, and from Brussels lines radiate in all directions to reach the capitals of the various States or nations with whom Belgium has concluded sanitary conventions. This very appropriately leads up to the exhibit just beyond of the International Office of Public Hygiene. Here, of course, is the whole collection of the *Bulletin*

issued by this institution, which, it will be remembered, was created by the official international sanitary conferences that have been held from time to time.[1] The International Office likewise exhibits maps which are appropriately of international interest. These maps show the distribution of plague, cholera, yellow fever, and sleeping sickness in the different parts of the world. Then there are a number of charts that have been sent from all parts of the world, including, for instance, Chili, Japan, Servia, Brazil, and, of course, all the leading European nations, giving the history of infectious diseases. Leaving this court the Belgian State Railways in the next division show what they have attempted so as to provide pure, filtered, sterilised, and cool water for the use of their railway servants. Then come details of contrivances in workshops to draw away injurious dust. Following upon what, so far, may be considered as national exhibits comes a series of exhibits from the Provincial Institutes of Hygiene or Pasteur Institutes. Among these the province of Liège indicates that the presence of excessive quantities of iron in the local water-supplies occasions much trouble. Both in the Hainault and Liège provinces the struggle to prevent the spread of ankylostomiasis has been the subject of much study and many endeavours. Among the exhibits of these provinces there are some remarkable magnified sections of human skin showing how the larvæ of the miners' worm penetrate the follicles.

Thus though so much has been destroyed there still remains much to be seen. The German and greater part of the French sections are intact. Italy and other nationalities have their exhibits uninjured. The machinery galleries were far from the fire, and the vast gardens with their multitude of small buildings containing a great variety of exhibits and side-shows are intact and will repay a visit. The fire was a terrible, but not a fatal, blow. The exhibition has suffered an unprecedented disaster, but it will survive till the proper and appointed time for its closure, while we are promised a reopening of a new British section.

The British Section was, as everyone knows, reopened by the King of the Belgians on Monday last, Sept. 19th. The good temper with which misfortune has been faced by the exhibitors, no less than the energy displayed by those in charge of the reconstitution of the section, has received universal approbation. The disaster has positively added to the *éclat* of the exhibition.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

Liverpool Royal Infirmary: New Out-patient Department.

THE construction of the new out-patient department of the Royal Infirmary is approaching completion. The exterior of the building is now completed, and the internal equipment, which will be of the most modern character throughout, is progressing expeditiously. When the new department is brought into use the pressure on the central institution will be immensely relieved, and more room will be afforded for other departments which are in need of extended accommodation. One of those which will chiefly benefit will be the X ray department which at present conducts its work in quarters by no means adequate to its importance.

The Workhouse Committee and Defective Eyesight of Children.

The medical treatment of children afflicted with defective eyesight through disease was under discussion at the meeting of the workhouse committee on Sept. 15th. Several of the members of the committee emphasised the undesirability of associating such children with workhouse surroundings. The feeling prevailed that the city council should have the juvenile patients dealt with in the corporation hospitals, where a special ward for eye cases might be opened, and this course was considered to be all the more practicable, inasmuch as the city council had power to insist upon parents of the children refunding the cost both of the medical treatment and of the provision, where necessary, of spectacles. Having regard to all these circumstances the committee decided to press upon the city council the desirability of terminating the existing arrangement. It would appear, from the report of the proceedings of the committee, that that body has overlooked the public outcry that would be raised were it in contemplation to treat children suffering from defective vision within the precincts of a corporation infectious hospital; and it is highly improbable that Dr. E. W. Hope (the medical officer of health) would recommend the health committee to sanction such an undesirable undertaking.

Generous Gift to Runcorn Hospital.

Mr. Frederick J. Norman of Runcorn has offered to complete Runcorn Victoria Hospital, by building the necessary wing, in memory of his late wife and his father, the late Mr. Thomas Norman. The wing will provide eight more beds. The hospital committee has gratefully accepted the generous offer.

Health of Liverpool.

The continued good health of the city is a matter of general congratulation. The past week shows a further diminution in the death-rate. It works out at an annual mortality of 14·9 per 1000, as against 17·1 per 1000 in the corresponding week of last year.

Sept. 20th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Scottish Sanitary Congress.

THE Thirty-sixth Annual Congress of the Incorporated Sanitary Association of Scotland was held in Elgin recently under the presidency of Mr. Robert Lindsay, chief sanitary inspector, Midlothian. Interesting papers were read on Infantile Mortality, Human Carriers of Disease, and the Control of Tuberculosis. In dealing with the question of smoke pollution in Glasgow, the chief sanitary inspector of the city pointed out that to the casual observer the manufacturers were the chief offenders in polluting the atmosphere, but the casual observer did not appreciate the fact that about 40 household chimneys send into the air as many cubic feet of waste gases as one average factory chimney. After discussing the laws against factory smoke and the attempts made to amend them, he added that it was now inadmissible for the ordinary manufacturer raising steam in any class of boiler to plead that he must occasionally be allowed to darken the sky and fill the air with soot and dust. The modern appliances for preventing smoke were now so many and so effective that it was useless to plead the impossibility of preventing it. As an example of what can be done he quoted the change effected in the boilers belonging to the Glasgow sewage department at Dalmarnock by fitting to three of them a well-known smoke-preventing plant. It was found that not only had they completely prevented all the smoke, but that in doing so they had managed to raise all the steam required in three boilers instead of four, and made an actual saving of money amounting to £220 in the seven months of working. Over and above this they had pumped about 240,000,000 gallons of sewage more with the steam raised in the three improved boilers than they had done in the previous seven months with the four hand-fired boilers. The question of domestic smoke was more difficult to manage, and until gas could be got at 1*s.* 4*d.* per 1000 cubic feet the solution was not likely to be reached in that direction.

Appointments to the Western Infirmary, Glasgow.

Dr. Robert Barclay Ness has been appointed visiting physician, and Dr. Robert Kennedy visiting surgeon.

Presentation.

The presentation of the portraits of Emeritus Professor A. Ogston to himself and to the University of Aberdeen will be made in the Portrait Gallery of Marischal College on Friday, Oct. 14th, at 3.30 P.M., by the Right Hon. Robert Farquharson, M.D., of Finzean, when all subscribers are invited to be present.

Sept. 20th.

[1] See THE LANCET, July 10th, 1909, p. 100.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Insanity in Ireland.

THE annual report of the Inspectors of Lunatics (Ireland) for 1909 shows that the total number of lunatics under care on Jan. 1st, 1910, was 24,144, being an increase of 213 during the year. This was the same increase as in the previous year, but was 150 less than the average increase for the preceding ten years. In 1880 the number of insane under care was 250 per 100,000 of the population; in 1909 it was 552 per 100,000. The increase has been continuous, though of late years its rate has lessened. The classification of causes of insanity in the report is admitted to be of little value. Indeed, in more than one-fifth of the cases which came under treatment in 1909 no cause was discoverable. There is a slight preponderance of males, 54 per cent. of the total. Among agricultural populations this preponderance is most marked, whereas in industrial populations, such as those served by the Belfast Asylum, female lunatics are slightly in excess. The general death-rate during the year was 7·6 per cent. Of the 1542 deaths, 350, or 22·7 per cent., were from phthisis, and 29 per cent. from dysentery or colitis and diarrhœa. Outside the large cities, general paralysis seems to be very rare. In fact, there has never been a case of general paralysis in the Killarney Asylum during the tenure of office of the present resident medical superintendent. During the year there were slight outbreaks of enteric fever in several of the district asylums throughout the country. The Inspectors deplore that little attention is paid to pathological investigation by the medical staffs of the different asylums. Indeed, in only about one-seventh of the cases of death was the cause of death verified by post-mortem examination. In most respects, however, the Inspectors have high praise for the manner in which the asylums are administered by the medical superintendents and their assistants.

Fever in the West of Ireland.

In addition to the serious outbreak of typhus fever in Connemara, which has recently shown signs of recrudescence, several minor outbreaks of typhus and typhoid fever are reported from different parts of the West. In the Tobercurry district of County Sligo, the Manorhamilton district of County Leitrim, and the popular seaside resort of Bundoran in County Donegal, a few cases have occurred. The sanitary condition of urban and rural districts alike in the West of Ireland is sadly neglected, and the frequent occurrence of such outbreaks of zymotic disease as have occurred this year is a strong argument in favour of the establishment of a national medical service, with the guarantee of independence for medical officers of health.

Belfast Memorial to King Edward VII.

At a largely attended meeting of the citizens of Belfast, convened by the Lord Mayor, and held in the City Hall on Sept. 13th, to consider what steps should be taken to establish a memorial of His late Majesty King Edward VII., the Right Hon. Thomas Sinclair moved, and Mr. Robert Thompson seconded, a proposal to erect and equip an additional building, to be used for special medical and surgical as well as for administrative purposes at the Royal Victoria Hospital. Sir John Byers explained fully the needs of the hospital. He pointed out that they wanted an enlargement of the department of radiology and medical electricity, with a thorough modern equipment, and a new department for hæmatology and vaccine therapy. He showed the enormous advantages of such new developments both for diagnosis and treatment. They could be accommodated in part of the proposed additional memorial wing, the remainder of which would be set aside for administrative purposes, and he urged that this new building should be made sufficiently large for any requirements needed when all the beds in the hospital would be occupied. A subscription list was opened with the Lord Mayor as treasurer, and a strong committee with power to add to its number was appointed to carry out the scheme. It was announced at the meeting that a sum of £7,975 had been already promised, which was regarded as a most satisfactory beginning.

The County Antrim Infirmary.

At a meeting of the Ballymena board of guardians on Sept. 10th the following resolution, which was received from the board of guardians of Ballymoney, was passed, the guardian proposing it stating that their dispensary medical officers were against sending patients to the Lisburn Infirmary, as they preferred to have them go to a specialist when they required special treatment:—

That this board desire to put on record their protest against any further payments being made from any funds of this union, or the rural district council, in aid of the County Infirmary, Lisburn; and that copies of this resolution and of the reports of our medical officers on the subject be sent to each board of guardians in the county.

On the part of the County Infirmary at Lisburn a statement has been issued to the effect that it is not mainly a centre for specialising, but a place where surgical and medical cases that are not infectious can have the best treatment, and that it has a great advantage over most county infirmaries in having immediate access to some of the foremost specialists in Belfast. It is also pointed out that while County Down gives £1400, Tyrone £1400, Armagh £1400, as well as Monaghan and County Derry, the County Council of Antrim for its infirmary contributes only £600.

Sept. 20th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Communication of Sporotrichosis by the Bite of an Infected Rat.

AT a recent meeting of the Société Médicale des Hôpitaux M. Jeanselme and M. Chevalier described a case in which a female had been bitten on both thumbs while holding a rat which had been inoculated with sporotrichosis. Some days afterwards indolent circumscribed nodules made their appearance at each of the places bitten. This was soon followed by the superficial formation of pus having the viscidity characteristic of the pus of sporotrichosis. On the removal of the epidermis each of the nodules was seen to be covered by a superficial, greyish, atonic ulcer. There was no appreciable lymphangitis, but on the left side there was enlargement of the glands without inflammation. As soon as the nature of the infection was ascertained by the progress of the case and by cultures, the patient was treated with iodine, and the lesions improved rapidly. From the pus on the ulcers M. Jeanselme and M. Chevalier obtained pure cultures of the sporotrichium Jeanselmi, with which the rat had been infected.

Precautions against Cholera.

As long ago as August 1st the President issued a decree specifying a variety of precautions against the importation of cholera into France. Every person coming from a place infected with cholera and presenting suspicious symptoms on his arrival at the French frontier will be detained at the frontier railway station by the specially appointed commissary, and will be isolated until medically examined. If the medical man considers that he is not infected he will be allowed to continue his journey, but in the contrary case the specially appointed commissary acting in concert with the municipal authority, will forthwith convey the patient to a suitable place where, in the opinion of a medical man, isolation may be carried out under conditions comfortable for the patient and efficacious from the prophylactic point of view. The departmental delegate will be sent by the prefect to the locality in question and will immediately take all measures necessary for isolation and prophylaxis. Every person coming from a district infected with cholera who in the course of the journey shall present suspicious symptoms shall, as soon as possible, be isolated in a compartment of the railway train which all the other travellers must vacate; all the railway servants are required to take immediate action for carrying the above-mentioned regulations into effect. At the first stoppage of the train in a station where there is a specially appointed commissary the patient shall be isolated by this official under the prescribed conditions. Every person who on

arriving in a French railway station from a district infected with cholera shall present suspicious symptoms shall be dealt with in the same manner. The carriages which have been occupied by a patient either suffering or suspected to be suffering from cholera shall be emptied and disinfected. The following articles coming from infected districts must not be brought into France by the land frontier: soiled linen, wearing apparel, soiled clothing or bedding, rags, fruit, and vegetables. In the case of soiled clothing or bedding an exception is made in favour of these articles when conveyed as luggage; rags may also be admitted when compressed in large bales, secured with hoops, and conveyed as merchandise. Every person with whom lodgings have been taken by travellers coming from infected districts is required to declare the fact. Every case of illness suspected to be cholera must be immediately declared at the *mairie*. Every person suffering from an illness which is either known or suspected to be cholera shall be immediately isolated by order of the *maire* acting in concert with a medical man. Disregard of this regulation will be severely punished.

The Depopulation Question.

M. Ambroise Rendu, a municipal councillor, has asked the Assistance Publique to consider a proposal for an alteration in its methods of giving relief. The suggestion is that the relief given to old men, whether in hospital or not, should be reduced to the lowest possible limit and that more liberality should be shown to mothers and children in the curable stage of tuberculosis.

Appointment.

Dr. Marfan, *agrégé*, has been appointed Professor of Therapeutics in the Paris Faculty of Medicine.

The Supply of Medicines at Night.

The pharmaceutical chemists have, at the instance of their assistants, decided to close their places of business at 9 P.M. daily, and have at the same time, through the pharmaceutical associations, made arrangements by which the public will in case of need be able to obtain medicines during the night without difficulty. If a patient's ordinary chemist is for any reason unable to answer a call at night the address of a pharmacy where someone is in attendance may be obtained from the nearest police station.

A Monument to Professor Victor Cornil.

In the little town of Cusset, near Vichy, a monument was unveiled on Sept. 8th to Professor Victor Cornil, the celebrated professor of pathological anatomy in the University of Paris, who died some two years ago. The monument to his memory has been raised by public subscription and a reproduction of the bust will be placed in Paris in the Faculty of Medicine. The Cusset monument is a life-size bronze representing the professor in his official robes, while on the pedestal is a bas-relief showing him in laboratory costume standing among a group of his best-known pupils—Widal, Letulle, Chantemesse, Bezançon, Milian, and Coudray—all of whom are perfectly recognisable. The bust was unveiled by M. Doumergue, Minister of Public Instruction, and M. Widal on the occasion delivered, in the name of the Faculty of Medicine, a eulogy of Professor Cornil's practical work. Others who spoke were M. Letulle for the Academy of Medicine, M. Doumergue, and the Mayor of Cusset. The last two recalled the fact that Cornil had a distinguished political career and was a personal friend of Gambetta.

"606."

Many of the medical profession in France have assumed a critical attitude with regard to this remedy, which they consider has been unduly boomed. Dr. Bouchard has pointed out that already researches have been made in France on similar lines with the aid of an arsenical product extremely similar to "606"—namely, benzo-sulfono-paramino-phenyl-arsenicate of soda—which was discovered at Lyons, and, under the name of hectine, furnished to Dr. Hallopeau material for some important observations, later brought to the notice of the Association of Medicine. Dr. Bouchard also recalled that hectine had been successfully used in Buenos Aires, and appeared to conclude that Ehrlich's method was based upon its employment.

Sept. 20th.

BUDAPEST.

(FROM OUR OWN CORRESPONDENT.)

National Institutions for the Care of Children in Hungary.

THE number of children in the special institutions provided by the Hungarian Government for their reception has now risen to 50,000, and in addition to this large number at present under its protection the Government has already had the care of 50,000 other children who have since been either given back to their parents, or, having reached their fifteenth year, have been dismissed from the charge of the State. Taking this fact into consideration, Hungarians can boast that their children's protection system is one of the foremost humanitarian institutions of the civilised world. At the Fourteenth International Hygienic Congress held in Berlin and at the International Congress held in Paris last year various societies expressed their admiration of the manner in which children were protected in Hungary, and experts come here from all parts of the civilised world to study the details of its methods. The homes for children consist of 16 large buildings in different parts of the country. Every child who has no supporter, or whose maintenance and education are not sufficiently ensured, either on account of poverty or bad hygienic conditions or other adverse circumstances, has a legal right to be cared for by the State. He is not obliged to appear at the door of the home praying for admission, but he can present himself and claim admission on the ground of legal right. Nowhere else in the world does a child possess such a privilege. In Germany, for instance, the child has no such right as regards the State, and deserted children are referred to the village charity. In France such cases have to be brought to the notice of the county council. Another prominent feature of the Hungarian system is that no documents are necessary for proving the fact of a child's abandonment. The Hungarian homes, therefore, take in any child who appears not to be under proper guardianship, and only after the State has received him into its care will inquiries be made—through the Society for the Protection of Orphans—as to whether he is really dependent on the State's care or not. Illness among the children in these homes is treated by medical experts, who have at their command a large number of wet-nurses, assistants, incubators, and all necessary surgical appliances, constituting a well-equipped modern hospital. Healthy children are not brought up in the institutions as "hot-house specimens" of humanity, not knowing the trials and troubles of life. Such children are placed by the State in suitable households of the artisan or agricultural class, where they grow up as members of the family, and ultimately become useful Hungarian citizens, irrespective of their former nationality. Even though such families are carefully chosen, the State still reserves to itself the right of control. For this purpose the services of the district medical officer are requisitioned, extra payment being made for this work. He is required to assure himself as regards the health of the children, their bodily and mental development, and their condition with respect to cleanliness and clothing. In the case of infants he must supervise the feeding of the child and take its weight from time to time. The State will shortly appoint a lady supervisor in addition to the already existing district medical officers. Her duties will be the carrying out of the details prescribed by the medical officer and the repeated visiting of the foster families, wherein she will take the part not so much of a Government official as of an aunt to the adopted child and a relation to the family. In the event of the foster-parents proving unsuitable, she will have the child removed to more appropriate surroundings. The intercourse between the child and its blood-relations does not cease when it becomes chargeable to the State—that is to say, when the child is adopted by the State. In other countries, however, this is not the case. In Paris, for instance, as soon as a child is taken into a foundling asylum the mother may only apply for information repecting it four times a year. In the Hungarian institutions a very different system prevails. It often happens that in the case of infants the mother and child are not only not separated, but if the mother requires it, suitable accommodation will be provided for them by the State. In the case of juveniles the mother is requested to visit the child and, as far as

possible, to help in the upbringing of it. Should she in any case be of opinion that her child's surroundings are unsuitable to its proper physical or mental development, she can, by reporting this to the State authorities, have the child removed elsewhere, even though her complaints should merely be the result of a mother's natural anxiety. Should the mother's, or the relation's, or even the child's circumstances so alter that the child could be brought up at home the mother may at once reclaim the child without being put to the expense of any reimbursements for its past maintenance. The relationship between child and State is controlled by an independent body called the Orphans' Protection Society, which is chosen from among the citizens of the community, and is invested with magisterial authority. The result is expected to be a decrease in infant mortality and also in the number of juvenile criminals, because it has been found that the majority of such criminals were those who had been abandoned to chance in their early years. The Hungarian Government also takes measures to prevent the corruption of children's morals. By order of Count Gyula Andrassy, ex-Minister of the Interior, children are admitted to the care of the State if it is found that they are being brought up in immoral surroundings, and such children, even though the parents may be in a position to provide for all physical wants, are removed from these evil influences. By protecting children in these various ways the State is accomplishing a great work which will have a beneficial effect on the whole Hungarian people. The yearly expenditure by the State for the protection of children amounts to 2,000,000 crowns (nearly £100,000).

Sept. 19th.

CONSTANTINOPLE.

(FROM OUR OWN CORRESPONDENT.)

The Epidemic of Cholera.

ALL the local papers have been affirming that several cases of cholera have occurred in different districts of Pera, Galata, and Stamboul. I have made inquiries and found that the statements are not correct. The suspected cases were violent gastric manifestations, with one sudden death of an aged woman in Pera, but careful bacteriological examination showed that there was no Asiatic cholera. The sanitary administration of the metropolis now issues authoritative and formal information that the rumours of the appearance of cholera in Constantinople are absolutely false and that up to now not a single case has occurred in any part of the city. An Extraordinary Sanitary Commission has been formed in order to watch the progress of cholera in neighbouring provinces of Russia and to take strict energetic measures of prevention. At one of the last meetings of this commission it was decided to build at Psamatia, on the Sea of Marmora, accommodation for 300 Mecca pilgrims. The expense of the necessary building will be covered by a sum, about £4000, from the Budget granted for sanitary and hygienic purposes. The Extraordinary Sanitary Commission is also occupying itself with other important sanitary matters of the metropolis, and has adopted a number of useful measures. The agents of the municipality are visiting and carefully inspecting every place in the city, and doing their best to see that the injunctions of the commission are strictly carried out, but their work is heavy. Quite a large number of dead dogs, whose corpses emit an unbearable stench, have been noticed floating in some parts of the Bosphorus and the Sea of Marmora. These are the bodies of the street dogs that have been transferred to the uninhabited island of Oxia in the Ismid Gulf, horrible to think, to die from starvation. But the Turkish view, though so inexplicable to us, is quite clear to himself. To kill a dog! Allah forbid! "Yassak, olmaz!" (prohibited). To let the dog die the horrible death of starvation—why, that is just the proper solution of a difficult problem. In the provinces cholera seems to be spreading. It first appeared in the *vilayet* of Erzeroum and then in the *vilayet* of Maamouret-ul-Aziz. Quite a considerable number of persons have succumbed. Statistics, however, are as yet wanting. The Sanitary Council of Constantinople has decided to prohibit the import of cereals and fruit from Russia. From Odessa comes the news that 84 persons have died recently in that city from bubonic plague, but the rumour that a case has occurred in Constantinople is false.

The Water-Supply of Stamboul.

A meeting was held at the city municipality recently, under the presidency of the Director of the Medical Faculty, to consider the question of the water-supply of Stamboul, which is beginning to cause considerable anxiety. Stamboul has two principal sources of water-supply, the Halkali one and the one from Kirk-Tchesmé. The first source reaches the city through the Adrianople Gate and is distributed to a large number of houses, especially in the western part of Stamboul. This water has been found to be quite dangerous for drinking purposes. The conduits leak in very many places and thus the water gets easily contaminated. The water-supply of Kirk-Tchesmé comes from so-called *bends*, and has been shown also to be polluted in the old rotten conduits. During the rainy season the water from this supply is so turbid that it is quite impossible to drink it, and people are very slow to use it even for cooking purposes. Another source of water-supply in Stamboul is the old "cistern" system. Many cisterns date from Byzantine times and are anything but proper and clean receptacles for water. Besides, in summer they frequently become perfectly dry. Typhoid fever and other infectious diseases have often been traced to the drinking of the water from the above-named sources. Well-to-do people usually buy the excellent water from the source of Tash-Delen, a well in Asia Minor a few miles distant from Scutari. This water is sold in sealed bottles and is by far the best to be got in the metropolis. But here unscrupulous vendors cheat the public in a most shameless manner, and sell water from the ordinary sources as that from Tash-Delen. It is believed that they use for that purpose the water from the famous Byzantine cistern of Yeri Batan Seray, which is full of microbes. There are still other secondary sources of water-supply, such as the Kara-Koulak near Beycos and the Ketsh-Souyou at Eyoub. These are in themselves quite good sources, but the vendors who sell the water from them are fraudulent and unreliable fellows. The Turks have a proverb which says: "Min el ma kul e shey" (everything comes from the water). The Moslems begin now to realise that from water may come, as well as the satisfaction of the prime needs of life, many a dangerous infection and disease. It has now been decided to absolutely renew the antiquated water conduits, which will be replaced by strong iron tubes, while the sources of Halkali and Kirk-Tchesmé will receive the necessary attention of the sanitary authorities. A credit of £T200,000 has been granted for the purpose.

An Extraordinary Case of Longevity.

A woman named Baba Vasilika, living in the Bulgarian village of Pavelsko, has reached the venerable age of 126 years, according to the records preserved in the Greek church of her village. These show that she was born in 1784. As there is evidence that her son, who is alive, is nearly 100 years old, the story of extreme longevity is better authenticated than usual, though remaining hard to swallow.

Sept. 13th.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

Antiplague Inoculation.

Colonel W. B. Bannerman, I.M.S., Director of the Bombay Bacteriological Laboratory, in a report on that institution recently issued, makes some interesting remarks on the efficacy of antiplague inoculation. He says to those who work, as the staff of his laboratory does, in a plague-infected place, it is quite unnecessary to bring forward proofs of the efficacy of inoculation as a plague preventive. Proof that this is so is ever present and needs no demonstration, but that the public require fresh proofs is evident from letters received asking for the latest statistics and proofs of efficacy. To laboratory workers the finest proof of the efficacy of antiplague vaccine is afforded by continued immunity from plague of the staff employed. Experiments are being constantly carried out there, in which hundreds of plague-infected fleas have to be used. These fleas are loose in experimental godowns, and men entering them constantly find fleas crawling on their bare legs or trousers and suffer daily from their bites. Again, in connexion with the examination and destruction of thousands of rats sent there

daily by the health department of the city of Bombay a staff of men are employed. These men have to remove rats from cages, to kill them, and to cut up those that are dead. From these rats it is an easy matter to collect several hundreds of rat fleas, some of which must be plague-infected. Yet the staff, numbering 111, who are all regularly inoculated every year, escape plague infection. This year, it is true, they have had two cases of plague among rat-men, but both fortunately recovered. The first was in the person of Kahnu Baloo, working with the Plague Commission in plague-infected godowns. He was inoculated on Jan. 19th, 1909, and developed a bubo on Feb. 23rd—i.e., one month afterwards. The illness was so mild that he wished to continue at his work, but was sent to the country for a month and returned quite well. The second was in the person of Bhagu Yessu, who developed plague four days after entering the service and before he had been inoculated. The man was seriously ill for several days, but eventually recovered. These two cases serve to demonstrate the presence of infection in the laboratory premises, and one must conclude that but for inoculation many more cases would occur. They also serve to bring out the difference in the severity in cases of plague in those inoculated previously and in those not so protected. An inoculated man refused to consider himself seriously unwell and was in no way alarmed at his illness, while an uninoculated individual was completely prostrated by his illness for the first three days.

The Pasteur Institute for Eastern Bengal and Assam.

With reference to the proposed establishment of a Pasteur Institute in Eastern Bengal and Assam, the local government has written to the Assam Branch of the Indian Tea Association that the scheme would have to be approved by the finance committee, and that it depends upon the amount of public support both in contributions for maintenance and first cost. The Tea Association is therefore asked to report what amounts will be forthcoming from the members of the Tea Association and from commercial bodies and private firms in Calcutta. When this information is forthcoming the Lieutenant-Governor of the province will consider whether it is practicable to proceed further in the matter.

The Home for Consumptive Patients at Dharampur.

The first annual report of the Indian Consumptives' Homes Society (the Seva Sadan, Bombay), which deals with the year ending May 31st, 1910, has been issued. The society took possession of the Kadam pine forest at Dharampur (Simla hills), not far from the Simla-Kalka railway, in June, 1909, and commenced work at once with open-air treatment in tents on a site granted by His Highness the Maharajah of Patiala at a nominal quit-rent of Rs.5 per annum. By the end of the year five "first-stage" cases had been sent to the sanatorium, and all of them were reported as cured. The tents were succeeded by wooden cottages. Since then the number of patients has multiplied, and although no attempt has been made to advertise the sanatorium, sufferers have come there from every province in the country. Mr. A. C. Majundar is the superintendent of the homes, and Dr. Banerji of Allahabad has acted as honorary physician. It is hoped by the authorities that other medical men and nurses may be found to assist in an honorary capacity. Thanks to the trustees of the N. M. Wadia charity, the society has Rs.25,000 available for accommodating 30 patients in six cottages, but money is required for carrying on the treatment in the buildings. Without a paid medical resident the lowest estimate of the expenditure for carrying on the homes is Rs.5000 per year, exclusive of the building expenses and the maintenance charges for poor patients. An appeal is made for further funds and arrangements are being made by which subscribers will be able to nominate free patients.

The Leper Problem in India.

The Bombay Government has decided to apply the Lepers Act to many parts of the Presidency. Existing asylums will be enlarged, and, where necessary, new ones established. In this movement the authorities are coöperating with the Mission to Lepers in India and the East, respecting whose work the Secretary to the Government says that the public are greatly indebted to the society for the many asylums it has already provided. Subsidised to a limited extent it is now segregating and supporting nearly 4000 Indian lepers. A new asylum, built jointly by the Government and the Mission, was opened in Poona last year, with accommodation for 200 inmates, and is under the management of the latter. The experience of several years has convinced the authorities that both efficiency and economy are secured by coöperation with voluntary workers.

The Control of Small-pox in Bombay.

The health officer will have the sympathy of all sanitarians in his efforts to check the spread of small-pox, which, owing to the inaction of the authorities, resemble the labours of the daughters of Danaus. Regularly every year the pilgrims returning from Jeddah introduce small-pox into Bombay. The efforts made by Government in recognition of this fact, to prevent the introduction of the disease by the Hajis, consisted in a letter which they addressed to the President of the Haj Committee, emphasising the desirability of vaccination, and asking its assistance. Dr. J. A. Turner has very rightly urged that persons going to places where small-pox is endemic should be vaccinated, and that those coming from such places should be made to submit to vaccination and revaccination. Until this is done a great part of the sanitary efforts expended in Bombay itself is thrown away. The average yearly deaths from small-pox in Bombay in the decennium 1899–1908 amounted to 949, a figure exceeded only by plague, fevers, and phthisis. Until adequate measures are taken to prevent importation, all the strenuous efforts of the Public Health Department to combat and control the spread of infection are bound to lose much of their value and yield very unequal results. Dr. Turner strongly advises the provision of suitable pilgrim camps outside the city, in the interests of the pilgrims themselves as well as of the inhabitants of Bombay.

August 16th.

Obituary.

JOHN LANGTON, F.R.C.S. ENG.,

CONSULTING SURGEON TO ST. BARTHOLOMEW'S HOSPITAL, ETC.

THE news of the death of this well-known surgeon a few days ago came as a painful shock to a large number of his friends and former pupils who had no reason to believe that he was in failing health.

John Langton was born at Denmark Hill, where his family then lived. He was educated at Brighton and subsequently at Cassel. With a view to adopting a medical career he was articled to Mr. John Henry Hewer of Highbury New Park, a well-known and esteemed practitioner. At the age of 17 he entered as a pupil at St. Bartholomew's Hospital, and matriculated at the University of London. He passed the first M.B. examination, and became M R.C.S. in 1861. Sir William Lawrence appointed him one of his house surgeons, and he proceeded to the Fellowship of the College in 1865. His next appointment was to a demonstratorship of anatomy under Mr. Luther Holden, and his teaching was so highly appreciated that he was much in demand by candidates for the Fellowship. At the age of 28 he was elected an assistant surgeon to the hospital, and continued to teach anatomy. In 1881 he succeeded to the full surgeoncy, and held office in that capacity till the age of retirement was reached in 1904. Many other appointments fell to his lot. For nearly 40 years he was surgeon to the City of London Truss Society, working diligently in this capacity and accumulating a vast series of notes on hernia, which he always hoped to embody in a work on this subject, but he never found time to carry out his design. He was consulting surgeon to the City of London Lying-in Hospital, the Tottenham Hospital, the Friedenheim Home for the Dying, and the Mildmay Memorial Hospital. In due time he became an examiner at the College of Surgeons, a member of Council, and a vice-president. For many years he was treasurer of the Medical Society, subsequently president, and later a president of the Clinical Society and a vice-president of the Royal Medical and Chirurgical Society. He took a leading part in the formation and welfare of the British Nurses' Association, and, as treasurer, contributed much time and money to its pension fund, warmly supporting Her Royal Highness Princess Christian in her efforts for the benefit and training of nurses. He was a visitor of hospitals for some

years in connexion with the King Edward VII. Hospital Fund for London.

Mr. Langton had a fine presence. He was an admirable operator, always prudent and careful, calm, and full of resource for details of all varieties of surgical work. He adopted full aseptic measures, and followed up his cases with untiring consideration and assiduity. Even-tempered, courteous, and painstaking, he won the esteem and affection of all with whom he had to do. Nothing was a trouble to him. Unsparing of his time, and often throwing over other claims, he was always ready to help and assist, to do a kindness, and to carry out thoroughly whatever he undertook. He retired from his hospital duties with great regret, for he delighted in them, and remarked at the time that "the rest of his days must be chiefly occupied in preparing for the next world." His private practice was considerable, and often took him into the country. His life all through was a very strenuous one. He had no taste for ordinary amusements, and his only pastime in his holidays was golf, which he practised at North Berwick and some other places on the East Coast. There was an element of the Puritan in John Langton's nature, yet he was anything but a sad man. His religion was a strong feature of his life and moulded his character. He was not a copious writer, but he contributed several valuable papers to the Hospital Reports, the Transactions of the Royal Medical and Chirurgical, and the Clinical Societies.

His illness began at Eastbourne on Sunday, Sept. 4th, with slight symptoms of a hemiplegia. His friend and old pupil, Mr. C. O'Brien Harding, accompanied him to London. Sir Thomas Barlow saw him several times, together with Dr. W. S. Colman and Dr. H. P. Hawkins. Two days later he became hemiplegic on the left side, and on Sept. 11th he passed away. He was in his seventy-first year. He leaves a widow and a grown-up family.

A memorial service was held in the Hospital Church of St. Bartholomew-the-Less on Sept. 14th, which was attended by those of his colleagues who were in town, by many old friends and pupils, and the hospital sisters and nurses. The interment took place quietly at East Finchley Cemetery at the same hour. His memory will remain to those who knew him best as the firmest of friends and the most dependable of colleagues. "*Exstinctus amabitur idem.*"

LOMBE ATTHILL, M.D. DUB., F.R.C.P. IREL., L.R.C.S. IREL.,

LATE PRESIDENT OF THE ROYAL COLLEGE OF PHYSICIANS OF IRELAND.

Dr. Lombe Atthill, senior Fellow and a past President of the Royal College of Physicians of Ireland and a past Master of the Rotunda Hospital, died suddenly at Strood Station, Rochester, on Sept. 14th, at the age of 83 years. Though he had retired from practice many years ago, Dr. Atthill's health was always good, and his death came with merciful swiftness to a man of his energetic habits. He was on a visit to a married daughter in Rochester, and having hurried to catch a train, he fell dead on the railway platform. Though his retirement had necessarily lessened his intimacy with the profession, and to many of the younger generation Atthill was only a name, yet to those a little older, who had been his pupils or his colleagues, who had worked with him in professional life, the news of his death brought a feeling of personal loss, not always felt when one of the elders of the profession is taken.

Lombe Atthill was born in 1827, the son of a distinguished Cambridge mathematician. At the age of 16½ years he was bound apprentice, as the custom then was, to Maurice Colles, a well-known member of the staff of the Meath Hospital, Dublin. Among his teachers, in addition to Colles, was the great physician Stokes, then delivering lectures at the Meath Hospital. Of his early studies and struggles Atthill has himself given a vivid description in a series of reminiscences published only a few months ago in the *British Medical Journal*. Left without resources while still in his apprenticeship by the early death of his father, it was only by the help of friends that he was enabled to finish his medical studies, but he became a qualified surgeon, holding the diploma of the Royal College of Surgeons in Ireland before he was 20. The contrast he has himself drawn between medical education 60 years ago and now is interesting. He thought that in his time as a student a more thorough knowledge of anatomy was required than at present. Moreover, clinical teaching was more extended both in medicine and in surgery under the old conditions. The result is, according to Atthill, that the student of to-day is better educated in such subjects as physics, chemistry, physiology, and bacteriology, but he is greatly inferior in the practical part of his profession.

After a short time as demonstrator of anatomy in the Park-street School of Medicine, long extinct, Atthill was appointed dispensary medical officer to a district in the King's County. He was disappointed, however, with the opportunities offered by country practice, and after 18 months returned to Dublin. Having been an unsuccessful candidate for an appointment in the South Dublin Union, he was offered the assistancy to the Master of the Rotunda Hospital. As he saw no other opening to a livelihood he accepted the offer, though he had hitherto shown a strong distaste for midwifery. The Dublin School of Obstetrics owes much to his chance defeat in the election in the South Dublin Union. At the time Atthill took up his duties in the Rotunda, and, indeed, for long after, it was a very different place from what it is to-day. Though the average death-rate was very low—11 deaths among 2100 patients in his first year—yet from time to time terrible outbreaks of "puerperal fever" occurred. In 1854, Atthill's third year of office, an outbreak occurred, so severe that the hospital had to be closed for a short time, and undoubtedly the impression left upon him by that occurrence led to his drastic action 20 years later when Master of the institution. For many years after leaving the Rotunda Atthill had a hard fight to make ends meet. He had married young and children came, and it was necessary to keep up a good appearance and to live in a good neighbourhood. His professional earnings in his first year of practice amounted to £10. It was ten years before he made £100 a year in fees. To make a living he was obliged to take pupils, a thing uncongenial to him. On more than one occasion he all but accepted offers of work in England, but his wife's encouragement kept up his heart and he stayed. In 1860 he became a Fellow of the King's and Queen's College of Physicians, as it was then called, and immediately afterwards was elected registrar, a post which he held for eight years. During this long struggle he had been making his way steadily in the esteem of the medical profession, and in 1868 he was invited to join the staff of the Adelaide Hospital, and to take charge of a ward for the treatment of diseases peculiar to women. This was the first appointment of the kind in a Dublin general hospital. He made the most of his opportunities, developed a large extern clinic, published a volume of clinical lectures, and in 1875 became Master of the Rotunda.

Atthill found the Rotunda in 1875 almost as he had left it in 1854. He set himself to make changes, radical at the time, though to us they seem obvious. His most difficult task was to get rid of the old ward nurses and to institute a modern system of nursing. This, however, he accomplished successfully, and in addition, he brought a water-supply to the wards, and methodically employed antiseptics as soon as the meaning of the Listerian school became clear. In the face of bitter opposition he organised the extern maternity. Up to this the hospital was purely a lying-in institution, but Atthill opened a gynæcological wing and introduced modern gynæcological methods into the hospital. From this time till his retirement from practice in 1898 Atthill occupied a foremost place in the profession in Ireland, and indeed in the kingdom. Many honours were given him. He was elected President of the Royal College of Physicians of Ireland in 1888, and represented the College on the General Medical Council from 1889 to 1893. He was President of the old Obstetrical Society of Dublin, of the Royal Academy of Medicine in Ireland, and of the Obstetric section of the British Medical Association. In addition, he was an honorary member of various obstetric and gynæcological societies. Even after his retirement from practice, Atthill kept up a constant interest in the affairs of the profession. In particular his interest in the Rotunda Hospital and in the College of Physicians was unflagging.

Atthill's death has severed a notable link with the past. The pupil and friend of the great men of the Dublin School of Medicine, he was himself, in his own line of work, a great man. Much of his work, like that at the Rotunda Hospital,

was in organisation, though his published writings had a great vogue in their time. His clinical lectures ran through many editions and were translated into many languages. He took pride in the Dublin school, and liked to recall that among his friends were such men as Stokes and Corrigan, Montgomery and Hudson, Wilde and Marsh. By those who knew him well, Atthill was as much loved as he was respected by all. A kindly man, who had his pleasure in his home and family, his house and garden, his old age was spent in a happy leisure known to few. In his business and professional relations he was eminently straightforward, expressing his thoughts clearly, whatever they might be. He was, indeed, as free in expressing his disapproval as he was generous in praise. The profession has lost a good man and a great man in him, one who served his generation well. To his relatives—his widow, his children, his grandchildren—we offer sincere and respectful sympathy.

JOHN LISTON PAUL, A.M. KING'S COLL. ABERD., M.D. EDIN.,

DEPUTY SURGEON-GENERAL MADRAS ARMY (RETIRED).

WE regret to announce the death of Deputy Surgeon-General John Liston Paul, which took place at his residence, Conyham Lodge, Torquay, Devon, on August 25th. He was born at Elgin in Scotland in the year 1827, and received his education at the Universities of Aberdeen and Edinburgh and at Paris. In 1845 he graduated in arts at the University of Aberdeen, and after obtaining the Licentiateship of the Royal Colleges of Edinburgh in 1848 he was granted in the same year the M.D. of Edinburgh. In 1851 he entered the medical service of the Madras Army and subsequently held the position of professor of surgery in the Madras Medical College, where he endeared himself to all who sought his advice and aid. He was also surgeon to the Madras General Hospital. He retired at a comparatively early age from the Indian Medical Service with the honorary rank of deputy surgeon-general, but afterwards acted as president of the Medical Board at the India Office during the absence of Sir Joseph Fayrer. After his retirement from the service Surgeon-General Paul purchased an extensive practice in London where his skill and kindness gained for him many new friends. Recently he went to reside in Torquay, where he passed away full of years and much honoured. It is interesting to note that the deceased officer was a brother of Lieutenant Paul of the Bengal Army, who was killed at the relief of Lucknow in 1857 while most gallantly leading his men, and that he was a godson of Liston, the famous surgeon.

HENRY CROCKFORD TURNER, M.R.C.S. ENG., L.S.A.

AN honoured name has been removed from the list of medical men practising in the county of Sussex by the death of Mr. Henry Crockford Turner which occurred at Steyning on Sept. 14th. He was the only surviving son of the late Mr. Richard Turner of Lewes, and was born in 1849. He entered Guy's Hospital and qualified M.R.C.S. Eng. and L.S.A. in 1870. Settling at Steyning he had a large practice there and in the surrounding district, and for a long period was one of the district medical officers under the Steyning board of guardians. He was also for many years medical officer to various friendly societies and was generally interested in local affairs. Unfortunately he had for very many years suffered from failing eyesight, and a few years since his sight became so bad that he was compelled to retire from practice. A local testimonial fund was started and met with a very ready response, showing, as it did, the respect and esteem in which he was held. The deepest sympathy will be accorded the relatives by a large circle both within and outside the profession.

DR. EMILY BLACKWELL.

THE death of Dr. Elizabeth Blackwell, which was recorded in THE LANCET of June 11th in the present year, has been soon followed by that of her younger sister Emily Blackwell. These two ladies were among the earliest medical women in America and were the joint founders of the first hospital for women in that country. Emily Blackwell was born in Bristol in 1826, being a daughter of Mr. Samuel Blackwell, who carried on the business of a sugar refiner in that city. In 1832 Mr. Blackwell emigrated to the United States, where he died in 1838, leaving a family of nine children in very reduced circumstances, but the energy and perseverance of two of his daughters enabled them to become prominent members of the medical profession. Emily Blackwell, who was five years younger than her more distinguished sister, received her professional education in the hospitals of New York, Edinburgh, Paris, and London. She graduated at the American Western Reserve University in 1854 and soon afterwards joined her sister, who had been already for about three years in practice in New York. After the Civil War in America she became dean of the Women's Medical College in that city and coöperated with her sister in founding and carrying on the New York Hospital for Women and Children. Unlike her sister, Dr. Emily Blackwell passed the most of her life in America and died at York Cliffs, Maine, on Sept. 8th.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced: Dr. Hermann Gock, director of the Provincial Lunatic Asylum, Landsberg, Prussia, aged 62 years.—Dr. A. Murset, surgeon-colonel in the Swiss army.

Medical News.

THE Charing Cross Hospital students' annual dinner will be held on Monday, Oct. 3rd, at 7.30 P.M., at the Criterion Restaurant, Piccadilly, W. Mr. Peter Daniel will be in the chair. Professor William Osler will be the chief guest.

ST. MARY'S HOSPITAL MEDICAL SCHOOL, LONDON.—The annual dinner of past and present students will be held on Monday, Oct. 3rd, at the Grand Hall, Prince's Restaurant, Piccadilly, W., at 7 P.M., when Mr. Ernest Lane will take the chair.

THE WELSH DINNER.—The annual dinner for 1910 will, as we have already announced, be held on Friday, Sept. 30th, at the Criterion Restaurant, Piccadilly, London, W. Mr. Robert Jones of Liverpool will preside. Tickets for the dinner may be obtained on application to Mr. J. Howell Evans, 25, Berkeley-square, London, W.

THE Dean and Faculty of Medicine of the University of Birmingham have sent out cards of invitation to a conversazione to inaugurate the opening of the session of the Medical Faculty of the University on Monday, Oct. 3rd. The reception will take place from 7.30 to 8 P.M.

THE ROYAL SANITARY INSTITUTE.—The fiftieth course of lectures and demonstrations for sanitary officers will be given during the months of October, November, and December at the Royal Sanitary Institute, Buckingham Palace-road, S.W. The course is divided into two parts: Part I., 25 lectures, embracing elementary physics, the public health statutes, the duties of a sanitary inspector, municipal hygiene, and building construction; and Part II., seven lectures on meat and food inspection. The lectures for Part I. begin on Oct. 3rd and end on the 31st of the same month, and those for Part II., which commence on Nov. 1st, will end on Dec. 2nd. Among the lecturers are Dr. G. F. McCleary, Professor H. R. Kenwood, Dr. E. Petronell Manby, Dr. Charles Porter, Mr. A. Wellesley Harris, and Dr. E. J. Steegmann. Inspections and demonstrations in connexion with the course will be made at the Wimbledon Sewage Works, Southwark and Vauxhall Waterworks, Sewage and Destructor Works at Ealing, Charing Cross Hospital, and Lambeth Disinfecting Station. Demonstrations will also be made in the districts of Islington and Chiswick and at the Aylesbury Dairy Company's premises, John Knight's Soap Works, and at Harrison and Barber's knacker's-yard. The seventeenth course of lectures for the practical training of meat inspectors is similar to the second part of the above course, and will commence on Oct. 7th. To assist students entering for the examinations on hygiene in its bearing on school life and to help women health visitors and school nurses, a course of lectures will begin on Oct. 10th dealing with physiology,

personal hygiene, sanitation of school buildings, the hygiene of child-life, and educational methods. The lecturers include Miss Marion Hunter-Vaughan, Dr. A. B. Kingsford, Dr. G. Eric Pritchard, and Dr. C. J. Thomas. Further particulars and forms of application for the examinations can be obtained at the offices of the Institute, 90, Buckingham Palace-road, London, S.W.

THE number of applications for copies of "Merck's Annual Report" being very large, Mr. E. Merck asks us to mention that some delay will necessarily take place in their delivery, but all applications will receive attention in due course.

HOSPITAL FOR SICK CHILDREN, GREAT ORMOND-STREET, W.C.—At this hospital lectures and demonstrations which are free to all qualified practitioners are given on Thursdays at 4 P.M. The winter session will open on Oct. 6th, when Dr. W. S. Colman will lecture on Scurvy in Children. On Oct. 13th Mr. T. H. Kellock will take Torticollis for his subject. In addition to these lectures special post-graduate courses of three months' duration are held for systematic instruction in the medical and surgical diseases of children. These courses consist of 24 medical and 24 surgical demonstrations, but special arrangements can be made for parts of each course. Further particulars can be obtained from the dean at the hospital.

DONATIONS AND BEQUESTS.—Mr. Adolph Ahrens, a Manchester merchant, has announced his intention of celebrating the seventieth anniversary of his birthday by giving £5000 to Manchester charities. The Royal Infirmary and the Victoria Memorial Jewish Hospital will receive £1000 each.—The late Miss Emily Knowles has by will bequeathed £5000 each to the Charing Cross Hospital, the Middlesex Hospital, the University College Hospital, the Royal Free Hospital, St. George's Hospital, St. Mary's Hospital, the London Hospital, the Cancer Hospital, the Chelsea Hospital for Women, the British Hospital for Incurables, Clapham, Queen Charlotte's Hospital, and £1000 each to Dr. Barnardo's Homes and the Royal Society for the Prevention of Cruelty to Animals.

COMPULSORY NOTIFICATION OF MEASLES.—The following motion was agreed to at a meeting of the Hackney borough council on Sept. 15th :—

That it be referred to the Public Health Committee to consider and report to the council on the advisability or otherwise of taking steps for the compulsory notification of measles as an infectious disease.

Mr. A. S. Dawson of Homerton, in proposing the motion, said that measles was responsible for ten times the number of deaths resulting from scarlet fever or diphtheria. His desire for notification was not based on personal grounds—though one of his children had died in consequence of the absence of notification—but on the question of principle. It was an opprobrium on their health authorities that they were so supine on this matter when measles had been notifiable for years in Paris. The chairman of the Public Health Committee announced that they were quite prepared to accept the motion.

MEDICO-PSYCHOLOGICAL ASSOCIATION.—The autumn meeting of the South-eastern division of this association will be held at the London County Asylum, Bexley, on Wednesday, Oct. 5th. After the members, who may assemble at noon, have inspected the asylum and grounds, Dr. T. E. K. Stansfield has invited them to luncheon, which will be served from 1.30 to 2 30, during which time there will be a meeting of the divisional committee. The general meeting will take place at 2 45, when, after fixing the place of the spring meeting, which is to be held on April 25th, 1911, and transacting any other business, communications will be read by Dr Stansfield on Heredity and Insanity, and by Dr. E. Faulks on Sterilisation of the Insane. The members will dine together after the meeting at the Café Monico, Piccadilly Circus, W, at 6 45 P.M., provided that a sufficient number agree to dine. The price of the dinner is 5s., exclusive of wine, and morning dress is permitted. Members are begged to inform Dr. Stansfield by Sept. 30th if they will attend the meeting and dinner. The nearest station to the asylum is Bexley (*not* Bexley Heath); the asylum is at the border of Dartford Heath. There are trains from London Bridge arriving at Bexley at 11.21 A.M., 12.28 P.M., and 1.8 P.M.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

CARRE, HENRY, L.R.C.P. & S. Irel., L.M. Rot. Hosp. Dub., has been appointed Medical Superintendent of the Glasgow District Asylum, Woodilee, Lenzie, Glasgow.

DARLINGTON, WILLIAM, M.B., Ch.B. Edin., has been appointed Senior House Surgeon at the General Infirmary, Macclesfield.

HAMILL, PHILIP, D.Sc. Lond., M.R.C.S., L.R.C.P. Lond., has been appointed Pathologist at the City of London Hospital for Diseases of the Chest.

INKSTER, JOHN, M.B., Ch.B. Aberd., has been appointed House Physician at the City of London Hospital for Diseases of the Chest.

JAMESON, WILSON, M.B., Ch.B. Aberd., has been appointed Resident Medical Officer at the City of London Hospital for Diseases of the Chest.

KIDD, ALAN, M.B., B.Ch., B.A.O. R.U.I., has been appointed House Physician at the Worcester General Infirmary.

LEECH, E. B., M.D. Cantab., has been appointed Physician to the Ancoats Hospital, Manchester.

M'INTOSH, G. W., M.B., M.S. Edin., has been appointed Joint Medical Officer of Health of the Burgh of Kirkcaldy.

MCPHERSON, JOHN, M.B., Ch.B. Aberd., has been appointed Senior House Surgeon at the Lincoln County Hospital.

MARLIN, THOMAS, M.B., Ch.B. Glasg., has been re-elected House Physician at the City of London Hospital for Diseases of the Chest.

OWEN, SYDNEY A., M.D. Cantab., M.R.C.P. Lond., has been appointed Physician to Out-patients at the City of London Hospital for Diseases of the Chest.

STEPHEN, DAVID F. S., M.B., Ch.B. Aberd., has been appointed Junior House Surgeon at the Lincoln County Hospital.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BATH, ROYAL MINERAL WATER HOSPITAL.—Resident Medical Officer. Salary £100 per annum, with lodging, board, and washing.

BEDFORD COUNTY HOSPITAL.—House Physician. Salary £60 per annum, with apartments, board, and washing.

BIRKENHEAD BOROUGH HOSPITAL.—Junior Resident House Surgeon. Salary £80 per annum. Also Honorary Physician.

BOLINGBROKE HOSPITAL, Wandsworth Common, S.W.—Two House Surgeons for six months. Salary at rate of £75 per annum, with board and residence.

BRISTOL GENERAL HOSPITAL.—House Physician, House Surgeon, Casualty House Surgeon, and Assistant House Physician, all for six months. Salary £60, with board, residence, &c.

CANCER HOSPITAL, Fulham-road, London, S.W.—Assistant Surgeon.

CARDIFF INFIRMARY.—Honorary Ophthalmic Surgeon.

CHELSEA INFIRMARY, Cale-street, S.W.—Second Assistant Medical Officer. Salary £100 per annum, with board, washing, apartments, &c.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—House Physician. Salary £60 per annum, with board, apartments, and laundry.

DEVONPORT, ROYAL ALBERT HOSPITAL.—Resident Medical Officer, unmarried. Salary £100 per annum, with apartments, board, laundry, &c.

DREADNOUGHT HOSPITAL, Greenwich.—Two House Physicians, also Two House Surgeons, for six months. Salary in each case £50 per annum, with board, residence, and washing. Also Assistant Surgeon.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark Bridge-road, S.E.—House Surgeon. Salary at rate of £60 per annum, with board, residence, and washing. Also about Ten Clinical Assistants.

EXETER, ROYAL DEVON AND EXETER HOSPITAL.—House Surgeon. Salary £120 per annum, with board, apartments, and washing.

FULHAM INFIRMARY, St. Dunstan's-road, Hammersmith, W.—Junior Assistant Medical Officer for six months. Salary at rate of £100 per annum, with board, apartments, and washing.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.—Fourth Anæsthetist. Salary £15 15s. per annum. Also House Surgeon, unmarried, for six months. Salary £30, with board, residence, &c.

HOSPITAL OF ST. JOHN AND ST. ELIZABETH, 40, Grove End-road, London, N.W.—Resident Medical Officer for six months. Salary at rate of £80 per annum.

HULL ROYAL INFIRMARY.—Senior House Surgeon, unmarried. Salary £150 per annum, with board and apartments.

JERSEY INFIRMARY AND DISPENSARY.—Resident Medical Officer, unmarried. Salary £100 per annum, with board, lodging, and attendance.

KENSINGTON WORKHOUSE AND INFIRMARY.—Second Assistant Resident Medical Officer. Salary £100 per annum, with apartments, board, and washing.

LIVERPOOL WORKHOUSE, Brownlow Hill.—Assistant Medical Officer. Salary £100 per annum, with rations, apartments, &c.

LONDON HOSPITAL, Whitechapel, E.—Two Surgical Registrars. Salary £100 per annum each.

LONDON TEMPERANCE HOSPITAL.—Surgical Registrar. Salary at rate of 40 guineas per annum.

LOWESTOFT HOSPITAL.—House Surgeon, unmarried. Salary at rate of £100 per annum, with board, lodging, and washing.

MACCLESFIELD GENERAL INFIRMARY.—Junior House Surgeon. Salary £60 per annum, with board and residence.

MAIDSTONE, WEST KENT GENERAL HOSPITAL.—Assistant House Surgeon, unmarried. Salary £60 per annum, with board and residence.

MANCHESTER ROYAL INFIRMARY.—Medical Officer for six months. Salary at rate of £100 per annum, with board and residence.

MORPETH, NORTHUMBERLAND COUNTY ASYLUM.—Junior Assistant Medical Officer (female). Salary £120, with board, apartments, laundry, and attendance.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC.—Clinical Pathologist. Salary £50 per annum.

NEWCASTLE-UPON-TYNE CITY ASYLUM, Gosforth.—Junior Assistant Medical Officer, unmarried. Salary £140 per annum, with apartments, board, and laundry.

PADDINGTON INFIRMARY AND WORKHOUSE.—Second Assistant to the Infirmary and Medical Officer to the Workhouse for six months. Salary at rate of £100 per annum, with board, lodging, and washing.

PLYMOUTH, SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House Physician for six months. Salary £75 per annum, with board, residence, and washing.

READING, ROYAL BERKSHIRE HOSPITAL.—House Physician and Second House Surgeon, both for six months. Salary £80 and £60 per annum respectively, with board, lodging, and washing.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—Examiner in Dental Surgery.

ROYAL NAVAL MEDICAL SERVICE.—Fifteen Commissions.

ST. MARY'S HOSPITAL FOR WOMEN AND CHILDREN, Plaistow, E.—Assistant Resident Medical Officer, unmarried, for six months. Salary at rate of £80 per annum.

SALFORD ROYAL HOSPITAL.—Junior House Surgeon for six months. Salary at rate of £50 per annum, with board and residence.

SAMARITAN FREE HOSPITAL FOR WOMEN, Marylebone-road, N.W.—Clinical Assistants.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Physician, unmarried. Salary £50 per annum, with board, lodging, and washing.

SOUTHPORT INFIRMARY.—Resident Junior House and Visiting Surgeon, unmarried, for six months. Salary £70 per annum, with residence, board, and washing.

SOUTH SHIELDS, INGHAM INFIRMARY AND SOUTH SHIELDS AND WESTOE DISPENSARY.—Senior and Junior House Surgeons. Salary £100 and £90 per annum respectively, with residence, board, and washing.

SUNDERLAND WORKHOUSE, Hylton-road.—Resident Assistant Medical Officer. Salary £120 per annum, with rations, apartments, and washing.

THROAT HOSPITAL, Golden-square, W.—Honorary Anæsthetist.

VENTNOR, ROYAL NATIONAL HOSPITAL FOR CONSUMPTION.—Assistant Resident Medical Officer, unmarried, for six months. Salary £100 per annum, with board, lodging, and washing.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—House Surgeon for six months. Salary £80 per annum, with board, rooms, and laundry.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Act at Wimborne, in the county of Dorset; at Kilmacthomas, in the county of Waterford; at Thetford, in the county of Norfolk; at Portumna, in the county of Galway; at Kiltimagh, in the county of Mayo; and at Brora, in the county of Sutherland.

THE Secretary of State for the Home Department gives notice of vacancies for a Medical Referee under the Workmen's Compensation Act, 1906, for the Sheriffdom of Stirling, Dumbarton, and Clackmannan, more particularly to the Dumbarton District; and for the Sheriffdom of Inverness, Elgin, and Nairn, more particularly to the Skye District.

Births, Marriages, and Deaths.

BIRTHS.

BEVAN.—On Sept. 20th, at 17, Lancaster Gate-terrace, the wife of Arthur Bevan, M.D., of a son.

DUHIG.—On Sept. 17th, 1910, at Little Langtons, Hornchurch, Essex, to Mr. and Mrs. Duhig, a son.

PASMORE.—On Sept. 15th, at Chelsham House, Upper Warlingham, Surrey, the wife of Dr. E. S. Pasmore, M.R.C.P., Medical Superintendent, Croydon Mental Hospital, Upper Warlingham, of a son.

MARRIAGES.

HAMILTON—MOORE.—On Sept. 15th, at St. Andrew's Church, Wells-street, London, W., Thomas Bogie Hamilton, M.B., Ch.B., M.R.C.P., Ministry of Justice, Cairo, Egypt, to Volta Kathleen, younger daughter of Beaufoi Moore, Barrister-at-Law, Middle Temple.

SMITH—MASON.—On Sept. 14th, at St. Mary Abbots, Kensington, John William Smith, F.R.C.S., of Manchester, to Irène Maud, only daughter of Mr. and Mrs. H. J. Mason, 88, Holland Park, London, W.

DEATHS.

BACOT.—On Sept. 13th, at Carfax, Marlborough-road, Bournemouth, William George Bacot, M.D., F.R.C.S., aged 80 years.

LEWIS.—On Sept. 15th, at "Chasemoor," Hindhead, Charles Mortimer Lewis, M.R.C.S., L.R.C.P., the devoted and dearly loved husband of Jessie May Lewis.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

A SANITARY "RISORGIMENTO."

As late as 1884, when Italy had been for 23 years independent and united, her sanitary condition still remained "mediæval," with no better means of antagonising cholera than the "fumigations" and the "sanitary cordons" discredited by civilisation. But by that time there were three men not less distinguished in the hygienic than in the political sphere, and these were Agostino Bertani, the surgeon-in-chief of Garibaldi's campaigns; Luigi Pagliani, the present occupant of the chair of public hygiene in the University of Turin; and Francesco Crispi, a Sicilian barrister, who, after serving in the patriotic ranks, had risen to prominence in Parliament and to administrative distinction as Minister of the Interior. The "situation" confronting them hygienically was about as desperate as that which Cavour and Garibaldi had to face politically in the previous generation, entire provinces being without water which could be drunk with safety; the reclamation of derelict and disease-engendering soil a fond vision; the great as well as the small centres of population still waiting for even the most elementary system of drainage; many communes denied the burying grounds now seen to be essential not only for public decency but for public safety; "sanitary" (that is, medical) assistance defective enough to be called "haphazard"; the pharmaceutical service "ditto"; vaccination perfunctorily practised even in quarters where it was recognised as a national necessity; the hospital service inefficient (or worse!) from the favouritism with which its *personnel* was recruited; and all this leading up to a yearly mortality (we are quoting official figures) of some 800,000 individuals out of a population of 28,500,000—that is to say, a proportion of 28 deaths per 1000 of the inhabitants, when foreign countries had reduced their mortality in some cases to from 15 to 16 per 1000. But by the close of 1888 the "Codice Igienico" of Bertani, interpreted with equal sagacity and prudence by Pagliani, and enforced with a masterful energy by Crispi, had begun to take effect, and Italy awoke from a lethargy as benumbing and enfeebling to her public health as the effete legitimist *régime* was deteriorating to her political development. The first step taken was to institute in Rome a "Scuola Superiore d'Igiene" to train and send forth, as from centre to circumference, the provincial practitioners, the health officers, the biological chemists, the bacteriologists, and the veterinary surgeons destined for the "vigilanza igienico-sanitaria" of the whole population. No only so; but against small-pox, malaria, pellagra, the Government, medically speaking, "took the field" with special equipment in prevention and cure; at the same time charging the local sanitary authorities and their staff with the surveillance of schools, the health of the children, the inspection of food, of the soil, of the dwelling, and of the whole *ensemble* of "industries." All this imposed a heavy draught on the State purse—at the beginning, indeed, restricted to the extent of parsimony, but inevitably increasing from year to year till from the million (£40,000) doled out in 1890 it has risen to 4 millions In the day now passing, however, it is noted with something like pained surprise that the initiative taken and carried out 20 years ago shows signs of slackening—the funds required proving unequal to the call made upon them. This may be inferred from the returns of mortality, showing in the decennium 1887-1897 a decline from 28 per 1000 to 21 per 1000, while in the subsequent decennium the figures oscillate between 21 and 23 per 1000. Political causes, or rather the interests of party politics, are said to explain this regrettable result, but into these it is beyond our province to enter. Certainly the demeanour of the more susceptitious of the population in the recent explosion of cholera proves that the coöperation of the public with the sanitary office is far from complete—education not having kept pace with the development of hygiene. Well says a distinguished representative of the Subalpine School: "When all Italians have learned to read and write, and have, in this way, become sensible of their duties and their privileges, we shall cease to witness those scenes of savagery which only superstition and ignorance can, up to a certain point, explain or justify. A visitation of cholera should leave us perfectly calm, because education would have had its reward in a population well instructed in the laws of health, private and personal as well as public and collective, and the equation 'Peace + Health = Well-being' would have its happy solution in Italy, as elsewhere."

TOWARDS A PURE MILK SUPPLY.

A JOINT committee of the National League for Physical Education and Improvement and of the National Health Society has drawn up a series of leaflets containing instructions which it is hoped, in the continued absence of general legislation on the subject of a pure milk-supply, will be useful to farmers, to retailers, and to the consumers of milk. The committee, which consists of many names eminent in the fields of hygiene and public health, is a sufficient guarantee for

the excellence of the information and instructions given in the leaflets. These are so full that it may seem over-critical to refer to an omission, but in leaflet A, which is addressed to farmers, although instructions are given as to the personal cleanliness of the milker and the proper hygiene of the cow-shed, there is no reference to the necessity of keeping clean the milking stool. However clean the cow's udders may be kept, however careful the milker may be to cleanse his or her hands before milking, if the milking-stool is allowed to remain in the cowshed there is always the danger of carrying infection to the udder of the cow when the milker picks up the stool. Leaflet B for distributors and retailers, as well as leaflet C for housewives, should "find a place in every home"—words used of many things which ought never to enter our doors, but employed here seriously. If the instructions in leaflet C are carefully adhered to there can be little danger of contaminated milk in the home, granting, of course, that the retailer has done his part before; while leaflet B will in some measure enable the housewife or her agent to see whether milk is being kept under proper conditions at the shop where she deals. In some places we believe the public are invited to view business premises where articles of food are stored and sold, and if this were more general in the milk trade it would tend, not only to the confidence of the consumer, but to the possible business advantage of the trader. Application for these leaflets should be made at 4, Tavistock-square, London, W.C. The price is 2*s.* per 100 or 17*s.* 6*d.* per 1000 copies, and local authorities can have the name of the authority printed in a prominent position on the front page, and so gain credit with their constituencies. A summary of the instruction to farmers and others in card form for hanging up in the cowshed is supplied at the rate of 9*d.* a dozen or 5*s.* per 100. A single card costs 1*d.*

HEALTH AND OTHER CONDITIONS IN SOMALILAND.

IN a report on the Somaliland Protectorate for the year ended March 31st, 1910, by Mr. H. A. Byatt, secretary to the Administration, it is stated that the population comprised in the 68,000 square miles under British protection is estimated at about 300,000, all Somalis, with the exception of 87 Europeans and whites, 200 Indians, 300 Arabs, and 100 mixed. As there are no records of births and deaths, the death-rates amongst the different classes are unknown. No census has ever actually been taken. The population appears to be increasing at a slightly improved rate, and the general public health has been satisfactory. The great increase of the number of patients treated has been due to the facilities offered to the natives of obtaining simple remedies, such as sulphur, &c., from the medical officers stationed with the troops inland, where a large number of the natives suffer from scabies. A Sanitary Board has been formed under the orders of His Majesty's Commissioner, Sir William Manning, K.C.M.G., who has also directed a daily routine examination of all matters connected with the jail management. A dental surgeon has visited the Protectorate during the year at Government expense. It is hoped that this may be continued in future years, as attention shown to this matter often considerably affects the health of the officers. The salubrity of the occupied locations depends on the simple avoidance during the summer months of the excessive heat present on the coast belt. The summer heat is such that while a dry condition persists there is little or no disease. The water-supply of Berbera, the principal town, is drawn from springs seven miles away, and is usually ample; the water at its source is from 95° to 105° F. when it issues from the spring. The coast belt of the country is of an unusually dry and arid type. Vegetation for the first 15 miles or so from the coast consists of low scrub bushes only, except for the few made gardens in the European parts of the town. The fine sand which is held in the air during the summer months, precludes flies or mosquitoes; in fact, owing to this condition, during that part of the year no winged insects are probably able to live. There are civil general hospitals at Berbera, Bulhar, and Zeyla. At Berbera there are also an isolation hospital for tuberculous patients and a single ward building for the accommodation of small-pox patients. A disinfecting station, furnished with a Clayton disinfector, and consisting of two rooms and caretaker's hut, is situated conveniently in the harbour. The inland or up-country hospitals are situated at Sheikh and Burao respectively. Both are camp hospitals only, medical aid being given to the political outposts by the medical officer stationed at Sheikh, assisted where there is urgency by the military medical officer from Burao. The percentage of deaths to those admitted to hospital was 5·4.

MOSQUITOES AND MALARIA.

THE Sanitary Board of Hong-Kong is anxious that everyone should take a share in helping to reduce the number of mosquitoes, and has issued a pamphlet to the public of advice and direction in the campaign of extermination. The prevention of the accumulation of water in pools and receptacles of domestic use is the object to be achieved, and the following are the instructions issued. Old tins, jam-pots, flower-pots, broken vases, and crockery which have been thrown on to a rubbish heap should be carefully collected and buried, the water in which cut flowers have been placed should be changed daily, and no plants should be grown in water anywhere in the neighbourhood of dwellings. Choked rain-water gutters should be cleared at once, and roofs kept clear of receptacles for rain-water. The gardener's tank, tub, or *kong* should be emptied and dried daily, or should contain gold-fish, which will eat the larvæ. Drain-trap should be disinfected with liquid carbolic disinfectant. Hollows in trees and broken bamboos, which hold rain-water for several days, should be dealt with by filling the hollows with clay or by sawing through the broken bamboos at the nodes. When once mosquitoes have hatched out they will survive for months, and it is therefore easier to deal with the larvæ. Every householder should use his best endeavours to rid his premises of mosquito larvæ, and complaints concerning the prevalence of mosquitoes in the neighbourhood should be made to the Sanitary Department, who will order an inspection to be made, and require the person responsible to take steps to abate the nuisance.

NURSING IN AUSTRALIA.

A CORRESPONDENT would be glad to know if any readers of THE LANCET could give him information as to the professional prospects in Australia of a highly qualified nurse—staff nurse at a London hospital and for years attached to a large London nursing home.

Milk will feel obliged if any reader will give him personal experience (1) of the use of the sour milk treatment in cases of arterio-sclerosis; and (2) of the use of subcutaneous injections of "fibrolysin" in cases of Dupuytren's contraction of the palmar fascia.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

A DIARY OF CONGRESSES.

THE following Congresses, Conferences, and Exhibitions are announced for 1910:—

Sept. 17th–25th (Antwerp).—Fourteenth Flemish Congress of Natural and Medical Sciences and International Scientific Exhibition.
" 18th–24th (Königsberg).—Eighty-second Congress of German Scientists and Medical Men.
" 22nd–27th (Toulouse).—Sixth French Congress of Gynæcology, Obstetrics, and Paediatrics.
" 22nd–28th (St. Petersburg).—Fifth International Congress of Obstetrics and Gynæcology.
" 27th–30th (Vienna).—Eighth International Physiological Congress.
" 29th and 30th (Glasgow).—First Annual Conference of the British Hospitals Association.
Oct. 1st–5th (Paris).—Second International Conference for the Study of Cancer.
" 3rd–7th (London).—Sixth London Medical Exhibition.
" 3rd–7th (Berlin).—International Congress on the Care of the Insane.
" 4th–8th (Brussels).—Second International Congress of Alimentary Hygiene.
" 5th–8th (Brussels).—Ninth International Tuberculosis Conference.
" 10th–15th (London).—Town Planning Conference.
" 13th–15th (Paris).—Eleventh French Congress of Medicine.
" 16th–22nd (Barcelona).—First International Spanish Congress of Tuberculosis.
Nov. 7th–12th (Cape Town).—Twelfth South African Medical Congress (1910).

Medical Diary for the ensuing Week.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

MONDAY.—4 P.M., Mr. Willmott Evans: Clinique (Skin).
TUESDAY.—4 P.M., Dr. N. Pitt: Clinique (Medical).
WEDNESDAY.—4 P.M, Mr. M. P. M. Collier: Clinique (Surgical).
THURSDAY.—4 P.M., Dr. F. J. Poynton: Clinique (Medical).
FRIDAY.—4 P.M., Mr. M. S. Mayou: Clinique (Eye).

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye.
TUESDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin.
WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. B. Harman: Diseases of the Eye. 2.30 P.M., Dr. Robinson: Diseases of Women.
THURSDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. Dunn: Diseases of the Eye.
FRIDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin.
SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Diseases of the Eye. 2 P.M., Medical and Surgical Clinics. X Rays. Operations.

LONDON HOSPITAL MEDICAL COLLEGE (UNIVERSITY OF LONDON), Clinical Theatre, London Hospital, Mile End-road, E.

MONDAY.—2 P.M., Clinical Demonstration: Dr. Wall: Diseases of the Lungs.

TUESDAY.—2 P.M., Clinical Demonstration: Dr. Grünbaum: Diseases of the Kidneys.

WEDNESDAY.—2 P.M., Clinical Demonstration: Dr. Hutchison: Diseases of the Digestive System and Children's Diseases

THURSDAY.—2 P.M., Clinical Demonstration: Dr. T. Thompson: Diseases of the Nervous System.

FRIDAY.—2 P.M., Clinical Demonstration: Dr. L. Smith: Diseases of the Heart and Vessels.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (26th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.),

TUESDAY (27th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

WEDNESDAY (28th).—St. Bartholomew's (1.30 P.M.),[University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (29th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

FRIDAY (30th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

SATURDAY (1st).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

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IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

The Index and Title-page to Vol. I. of 1910, which was completed with the issue of June 25th, were given in THE LANCET of July 2nd.

VOLUMES AND CASES.

VOLUMES for the first half of the year 1910 are now ready. Bound in cloth, gilt lettered, price 16*s.*, carriage extra.

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METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Sept. 21st, 1910.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain fall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Sept. 15	30·18	N.E.	0·06	68	65	53	56	57	Raining
,, 16	30·35	E.	...	94	63	55	56	57	Raining
,, 17	30·48	E.	...	98	62	54	53	58	Fine
,, 18	30·39	E.	...	117	66	52	56	59	Fine
,, 19	30·05	E.	...	106	65	53	56	58	Overcast
,, 20	30·20	N.E.	...	97	58	47	48	51	Fine
,, 21	30·37	N.	...	108	60	45	46	51	Fine

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